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NASA TM-82387

NASA'S UNIVERSITY PROGRAM

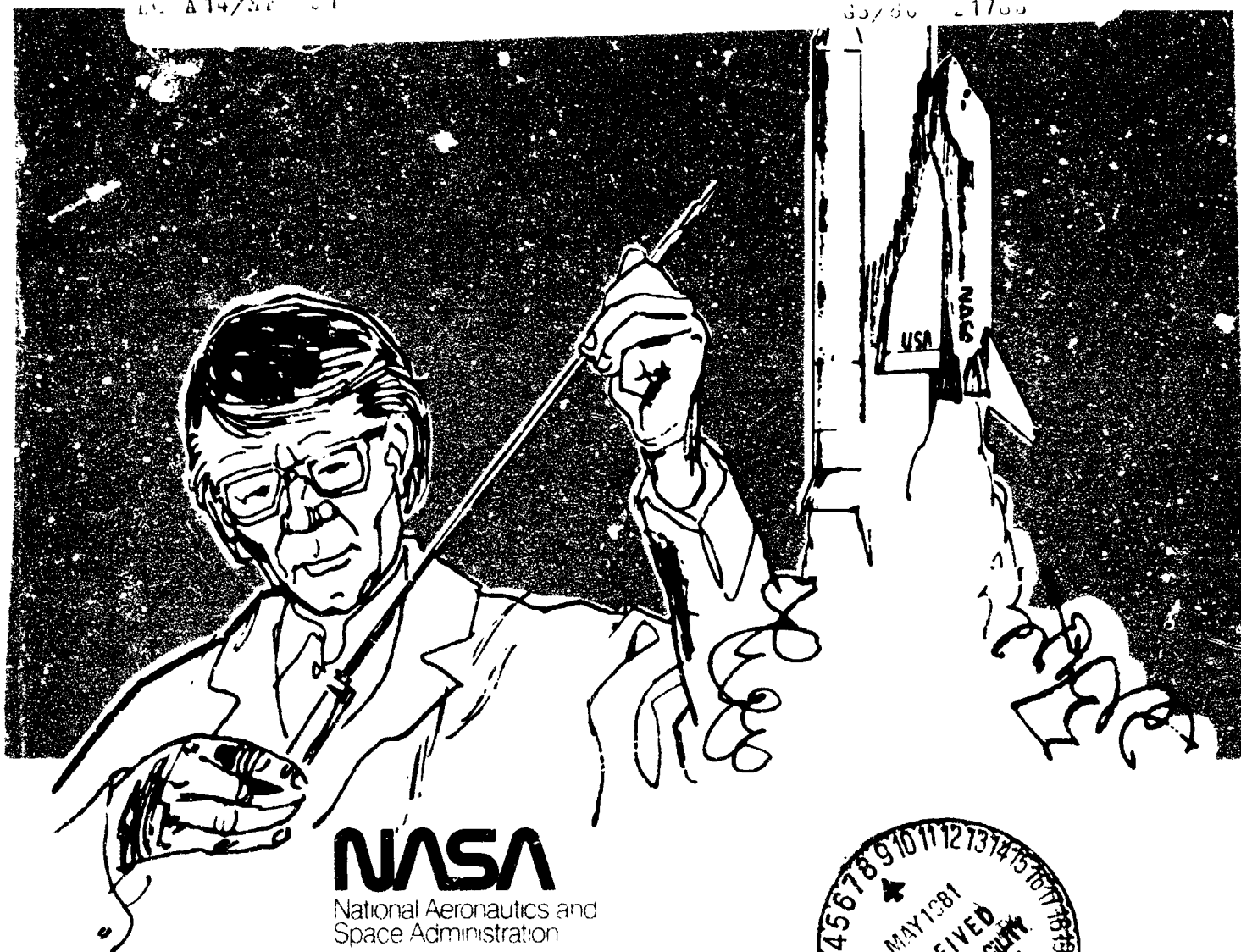
ACTIVE PROJECTS

(NASA-TM-82387) NASA'S UNIVERSITY PROGRAM
ACTIVE PROJECTS. FISCAL YEAR 1980 (National
Aeronautics and Space Administration) 320 p
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NASA

National Aeronautics and
Space Administration

University Affairs Office
Washington, D.C. 20546



FISCAL YEAR 1980

NASA'S UNIVERSITY PROGRAM

ACTIVE PROJECTS

FISCAL YEAR 1980

**National Aeronautics and Space Administration
University Affairs Office
Washington, D.C. 20546**

Acknowledgements

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Additional Copies

This publication is available from the National Technical Information Service (NTIS), 5285 Port Royal Rd., Springfield, Virginia 22161.

FOREWORD

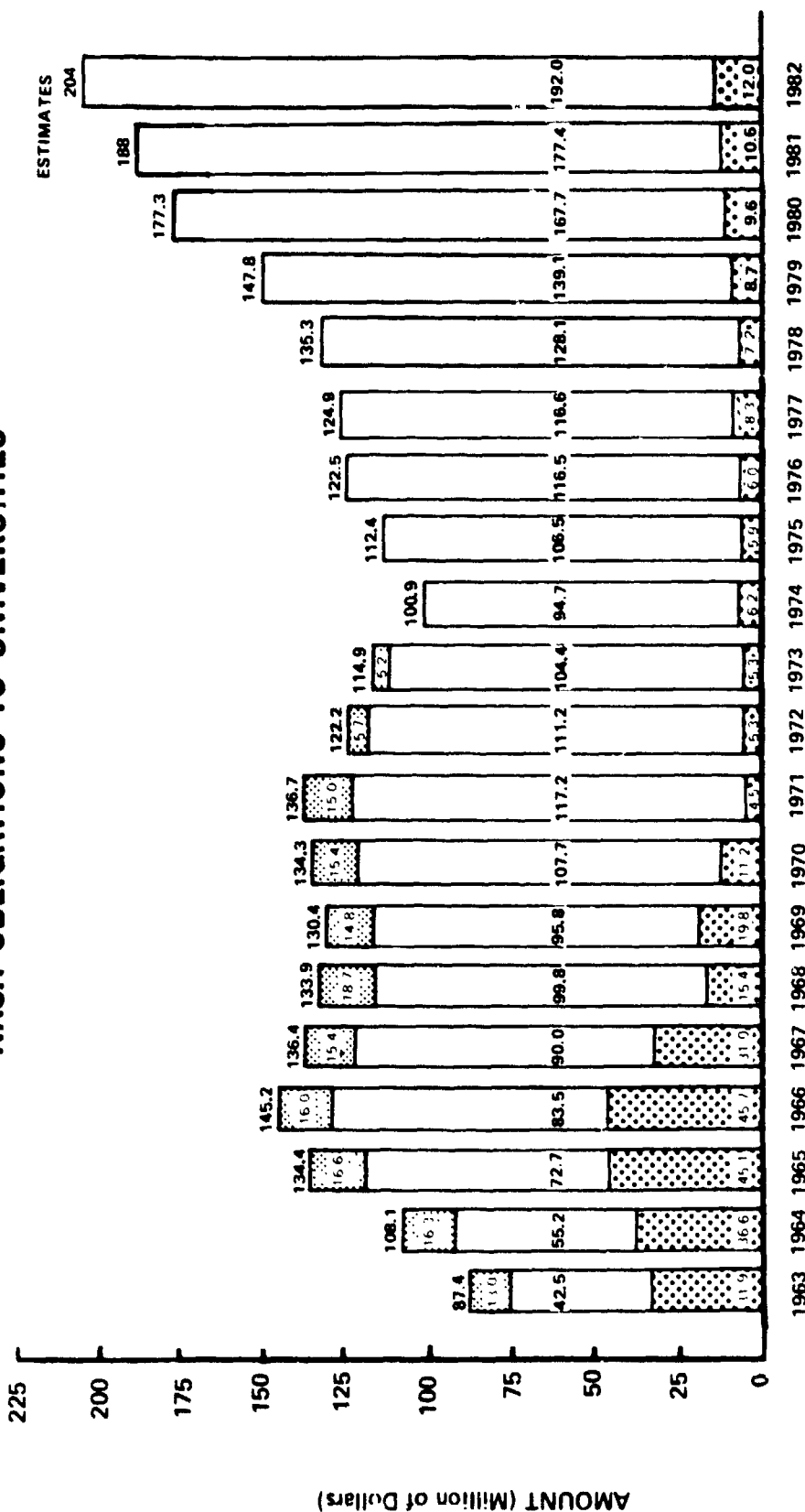
As basic policy NASA believes that colleges and universities should be encouraged to participate in the nation's space and aeronautics program to the maximum extent practicable. Indeed, universities are considered as partners with government and industry in the nation's aerospace program. NASA's objective is to have them bring their scientific, engineering, and social research competence to bear on aerospace problems and on the broader social, economic, and international implications of NASA's technical and scientific programs. It is expected that, in so doing, universities will strengthen both their research and their educational capabilities to contribute more effectively to the national well-being.

NASA Field Centers and certain Headquarters Program Offices provide funds for those R&D activities in universities which contribute to the mission needs of that particular NASA element. Although NASA has no predetermined amount of money to devote to university activities, the effort funded each year is substantial. (See the bar chart on the next page). This annual report is one means of documenting the NASA-university relationship, frequently denoted, collectively, as NASA's University Program.

The University Affairs Office (UAO) serves as a focal point for NASA's relationships with colleges and universities. One of its roles is to provide information on the NASA University Program. The present document is designed to serve several purposes and a wide range of audiences from private individuals to NASA employees. The emphasis is on the technical content of the program, rather than on fiscal data, which is available separately from UAO. As some terminology will not be familiar to all readers, a "User's Guide" is included to facilitate the fullest use of the material related to the interests of any particular reader.

Information on obtaining reports resulting from these projects may be obtained from: NASA, Scientific and Technical Information Branch, Code NST, Washington, DC 20546.

NASA OBLIGATIONS TO UNIVERSITIES



FISCAL YEARS

UNIVERSITY AFFAIRS OFFICE PROJECT RESEARCH SPACE GUIDANCE (DRAPER LAB)

- NOTES:
1. Excludes obligations to or through Federally Funded Research and Development Centers (e.g. JPL)
 2. Change in status from "university" to "non-profit" for three organizations accounts for \$10.1M of the difference between FY 73 and FY 74. (Draper Lab, ERIM, Dudley Observatory).
 3. University Affairs Office includes 1962-1971 Sustaining University Program.
 4. Omitted Obligations: Transition Period (July-Sept 1976). \$27.7M; FY 59, \$3.6M; FY 60, \$5.0M; FY 61, \$14.5M; FY 62, \$29.5 M.

Source: NASA University Affairs Office

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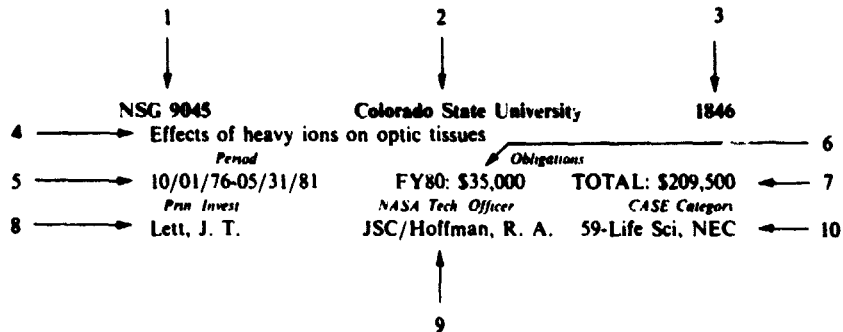
This report includes data on projects active during Fiscal Year 1980.

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Idaho	88	Rhode Island	207
Illinois	88	South Carolina	208
Indiana	95	South Dakota	209
Iowa	99	Tennessee	210
Kansas	103	Texas	213
Kentucky	106	Utah	230
Louisiana	108	Vermont	232
Maryland	110	Virginia	232
Massachusetts	120	Washington	247
Michigan	137	Wisconsin	251
Minnesota	143	Wyoming	255
Mississippi	145	Foreign Countries	255
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USER'S GUIDE

The University Program Report provides current information and related statistics for each grant/contract/cooperative agreement active during the report period. The following guidance is provided as an aid to the reader in readily locating material of interest and in optimizing the use of this document.

I. Typical Citation



1. Agreement Number.*
2. Institution Name.
3. Accession Number.
4. Brief work description.
5. Approximate period of performance.
6. Amount (if any) actually provided during the indicated fiscal year.
7. Total amount actually provided during the indicated period of performance.
8. Principal Investigator(s) at the educational institution.
9. NASA Technical Officer(s) and organizational location.
10. CASE Field of Science and Engineering code and name.

* Uniquely identifies project. Prefixes denote type of instrument as follows:

Grants	NAG, NAGW, NGF, NGT, NGL, NGR, NSG
Cooperative Agreements	NCC, NCCW
Contracts	DEN, NAS, NASR, NASW, NSR
Space Act Agreements	NCA
Purchase Orders	Single or Double Letter

II. NASA Installations

NASA installations are included in the citation as abbreviations (item 9). The following listing of installations will be useful to those desiring further information on specific projects.

Abbrev.	Installation Name and Address	Telephone Number for Information
ARC	Ames Research Center NASA Moffett Field, CA 94035	415/965-5000
DFRC	Dryden Flight Research Center NASA P.O. Box 273 Edwards, CA 93523	805/258-3311
GSFC	Goddard Space Flight Center NASA Greenbelt, MD 20771	301/344-5042
JPL	Jet Propulsion Laboratory 4800 Oak Grove Drive Pasadena, CA 91103	213/354-4321
JSC	Johnson Space Center NASA Houston, TX 77058	713/483-3111
KSC	Kennedy Space Center NASA Kennedy Space Center, FL 32899	305/867-7113
LARC	Langley Research Center NASA Hampton, VA 23665	804/827-1110
LERC	Lewis Research Center NASA 21000 Brookpark Road Cleveland, OH 44135	216/433-4000
MSFC	Marshall Space Flight Center NASA Marshall Space Flight Center, AL 35812	205/453-2121
NSTL	National Space Technology Laboratories NASA NSTL Station, MS 39529	601/688-2211

WFC	Wallops Flight Center NASA Wallops Island, VA 23337	804/824-3411
HD	NASA Headquarters Washington, DC 20546	202/755-2320

The abbreviation for NASA Headquarters, HD, usually carries a suffix, for example HD-LCU, which denotes a particular office and general area of responsibility. (LCU is the University Affairs Office.) A full listing of the suffix letters and information on NASA's organizational structure may be found in the NASA Headquarters Telephone Directory. (The Directory is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.)

III. CASE Fields of Science and Engineering

The National Science Foundation (NSF) operates a government-wide system (CASE) for collecting and analyzing data on support to colleges and universities. Participating agencies report annually to NSF which in turn issues *Support to Universities, Colleges and Selected Nonprofit Institutions*. The CASE Fields, used in the extensive tabulations contained in that document, form the only consistent classification system for government sponsored research. The fields are listed in full in the Appendix.

IV. Cross-Index

The cross-indexed Appendix is related to the citations (descriptions) by the accession number (item 3). The accession number has meaning only in this report; it is in no way permanently associated with nor does it uniquely identify a specific grant/contract/cooperative agreement anywhere except in the present report. Accession numbers are assigned sequentially to the citations, beginning with 1000. Thus, when an entry of interest is identified in the Appendix, the associated accession number allows ready location of the full description in the body of the report.

Appendix	This index provides rapid access to all projects in a particular area of endeavor, as defined by the CASE Fields. This listing is also easily used to determine the institutions and principal investigators conducting NASA projects in a field.
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NASA'S UNIVERSITY PROGRAM

ALABAMA

NAG 8-1 **Alabama A&M University** **1000**
 Development of capabilities for computer processing of remotely sensed data

Period	Obligations	
01/23/80-01/22/83	FY80: \$110,184	TOTAL: \$110,184
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Montgomery, O. L.	MSFC/Smith, A. D.	39-Env Sci, NEC
	MSFC/Atwell, B. H.	

NAS 8-32945 **Alabama A&M University** **1001**
 Solution growth of crystals in zero gravity experiment for materials processing in space

Period	Obligations	
03/05/78-03/05/83	FY80: \$121,000	TOTAL: \$286,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lal, R. B.	MSFC/Bannister, T. C.	47-Materials Engr

NSG 8033 **Alabama A&M University** **1002**
 The study of crystals for space processing and the effects of 0-gravity

Period	Obligations	
01/15/76-12/31/78	FY80: \$52,046	TOTAL: \$52,046
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lal, R. B.	MSFC/Schafer, C. F.	13-Physics
	MSFC/Thomas, P. E.	

NSG 8037 **Alabama A&M University** **1003**
 Atmospheric effects on coherent laser systems

Period	Obligations	
06/01/76-05/31/81	FY80: \$26,154	TOTAL: \$121,645
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Murty, S. S.	MSFC/Bilbro, J. W.	45-Elec Engr
	MSFC/Kent, M. I.	

NSG 8041 **Alabama A&M University** **1004**
 Parametric study of rock pile thermal storage for solar heating

Period	Obligations	
06/01/76-03/31/80	FY80: \$62,677	TOTAL: \$62,677
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Saha, H.	MSFC/Humphries, W. R.	46-Mech Engr
	MSFC/Zurburg, F. R.	

NSG 8057 **Alabama A&M University** **1005**
 Evaluation of digital system design languages

Period	Obligations	
10/01/77-10/15/78	FY80: \$21,990	TOTAL: \$21,990
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shiva, S. G.	MSFC/Gould, J. M.	45-Elec Engr
	MSFC/Kent, M. I.	

NSG 8062 **Alabama A&M University** **1006**
 The application of remote sensing technology to soil mapping and land use problems of Alabama and southeastern United States

Period	Obligations	
05/15/78-05/14/79	FY80: \$43,750	TOTAL: \$43,750
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Montgomery, O. L.	MSFC/Downs, S. W., Jr.	
	MSFC/Kent, M. I.	39-Env Sci, NEC

NSG 8064 **Alabama A&M University** **1007**
 Guinea pig macrophages for electrophoretic experiment

Period	Obligations	
09/29/78-04/28/79	FY80: \$3,960	TOTAL: \$3,960
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Savage, J.	MSFC/Snyder, R. S.	59-Life Sci, NEC

NSG 8065 **Alabama A&M University** **1008**
 Statistical classification techniques for engineering and climatic data samples

Period	Obligations	
11/01/78-03/31/81	FY80: \$57,274	TOTAL: \$57,274
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Temple, E. C.	MSFC/Smith, O. E.	21-Mathematics
Shipman, J. R.	MSFC/Kent, M. I.	

NSG 8066 **Alabama A&M University** **1009**
 Research in computer processing of remotely sensed data

Period	Obligations	
11/15/78-11/14/79	FY80: \$70,000	TOTAL: \$70,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Montgomery, O. L.	MSFC/Smith, A. D.	39-Env Sci, NEC
	MSFC/Atwell, B. H.	

NSG 8067 **Alabama A&M University** **1010**
 Characterization of space environment using plant cells and tissues

Period	Obligations	
02/01/79-01/31/81	FY80: \$78,081	TOTAL: \$78,081
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Neugebauer, M. G.	MSFC/Nerren, B. H.	51-Biological Sci
	MSFC/Kent, M. I.	

NSG 8068 **Alabama A&M University** **1011**
 The motion of particles in interstellar space released from a nuclear waste payload container

Period	Obligations	
07/01/79-06/30/81	FY80: \$52,416	TOTAL: \$52,416
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Williams, A. C.	MSFC/Burns, R. E.	13-Physics
	MSFC/Kent, M. I.	

NASA'S UNIVERSITY PROGRAM ALABAMA (Continued)

NAG 1-31 Tuskegee Institute 1024
Software requirements for a robot visual system operating in real-time
Period Obligations
02/01/80-07/31/81 FY80: \$18,765 TOTAL: \$18,765
Prin Invest NASA Tech Officer CASE Category
Bales, J. W. LARC/Barker, L. K. 22-Computer Science
LARC/Hankins, W. W.

NAG 1-72 Tuskegee Institute 1025
Minimization of differences between simulated and actual flight data for area navigation on high speed aircraft
Period Obligations
05/19/80-05/18/81 FY80: \$42,222 TOTAL: \$42,222
Prin Invest NASA Tech Officer CASE Category
Hargrove, A. LARC/Shanks, R. E. 41-Aero Engr

NAG 2-22 Tuskegee Institute 1026
Livercells: A model system for studies on metabolism in space
Period Obligations
04/01/80-03/31/81 FY80: \$30,000 TOTAL: \$30,000
Prin Invest NASA Tech Officer CASE Category
Tolbert, M. E. ARC/Klein, H. P. 51-Biological Sci

NAG 3-76 Tuskegee Institute 1027
Characterization of advanced electric propulsion systems
Period Obligations
06/02/80-06/01/81 FY80: \$38,367 TOTAL: \$38,367
Prin Invest NASA Tech Officer CASE Category
Ray, P. K. LERC/Kerslake, W. R. 19-Phys Sci, NEC

NAG 8-5 Tuskegee Institute 1028
Investigation of degradation process of insulating materials
Period Obligations
05/01/80-04/30/81 FY80: \$36,848 TOTAL: \$36,848
Prin Invest NASA Tech Officer CASE Category
Doreswamy, C. V. MSFC/Peacock, C. L. 45-Elec Engr
MSFC/Kent, M. I.

NAG10-1 Tuskegee Institute 1029
Study of permeability of polymeric materials to condensable gases and organic liquids
Period Obligations
02/25/80-02/24/81 FY80: \$29,877 TOTAL: \$29,877
Prin Invest NASA Tech Officer CASE Category
Dillon, I. G. KSC/Bryan, C. J. 12-Chemistry

NCC 2-12 Tuskegee Institute 1030
Morphometrics of cellular damage in mice receiving whole body irradiation
Period Obligations
08/01/79-07/31/81 FY80: \$25,000 TOTAL: \$70,000
Prin Invest NASA Tech Officer CASE Category
Sapp, W. J. ARC/Philpott, D. E. 54-Env Biology

NGT 01-005-750 Tuskegee Institute 1031
Training of undergraduate students in sciences and engineering
Period Obligations
06/01/75-05/31/81 FY80: \$12,887 TOTAL: \$68,887
Prin Invest NASA Tech Officer CASE Category
Dybczak, Z. W. HD-LU/Pohly, J. G. 49-Engr, NEC

NGT 01-005-780 Tuskegee Institute 1032
Pre-cooperative engineering education program
Period Obligations
10/01/78-07/31/80 FY80: TOTAL: \$8,950
Prin Invest NASA Tech Officer CASE Category
Dybczak, Z. W. HD-LU/Pohly, J. G. 49-Engr, NEC
LERC/Allen, R. P.

NSG 3154 Tuskegee Institute 1033
Evaporation behavior of superalloys
Period Obligations
08/01/77-09/01/80 FY80: TOTAL: \$102,556
Prin Invest NASA Tech Officer CASE Category
Ramirez, R. P. LERC/Titran, R. H. 47-Materials Engr
LERC/Klopp, W. D.

NSG 3295 Tuskegee Institute 1034
An improved computer model for prediction of axial gas turbine performance losses
Period Obligations
08/01/79-07/30/81 FY80: \$38,190 TOTAL: \$71,918
Prin Invest NASA Tech Officer CASE Category
Jenkins, R. M. LERC/Glassman, A. J. 41-Aero Engr

NSG 8038 Tuskegee Institute 1035
Investigation of electrical breakdown characteristics and stability of insulating materials used on solar cells (photovoltaic converters)
Period Obligations
08/01/79-12/31/79 FY80: TOTAL: \$48,928
Prin Invest NASA Tech Officer CASE Category
Doreswamy, C. V. MSFC/Young, L. E. 45-Elec Engr
MSFC/Kent, M. I.

NSG 8054 Tuskegee Institute 1036
An investigation of absorber and radiators for solar power systems
Period Obligations
09/01/77-06/30/81 FY80: \$39,952 TOTAL: \$92,441
Prin Invest NASA Tech Officer CASE Category
Sellers, J. P., Jr. MSFC/Peoples, J. A. 46-Mech Engr
MSFC/Kent, M. I.

NAS 8-33014 University of Alabama - Birmingham 1037
Materials processing in space experiment: Whole cell electrophoresis aboard spacelab
Period Obligations
05/17/78-12/31/79 FY80: TOTAL: \$40,000
Prin Invest NASA Tech Officer CASE Category
Chiovetti, R., Jr. MSFC/Bannister, T.C. 59-Life Sci, NEC
MSFC/Snyder, P.

NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)

NGR 01-010-601 University of Alabama - Birmingham 1038
Model for origin and coevolution of genetic code and the process of protein synthesis
Period Obligations
05/09/73-05/31/81 FY80: \$64,518 TOTAL: \$334,018
Prin Invest NASA Tech Officer CASE Category
Lacey, J. C., Jr. HD-SB/Devincenzi, D. L. 12-Chemistry

NAGW 9 University of Alabama - Huntsville 1039
Dynamic behavior of a flaring loop, a two-dimensional, time-dependent MHD (magnetohydrodynamic) flux tube model
Period Obligations
10/01/79-07/31/80 FY80: \$25,000 TOTAL: \$25,000
Prin Invest NASA Tech Officer CASE Category
Wu, S. T. HD-ST/Chipman, E. 13-Physics

NAS 8-28097 University of Alabama - Huntsville 1040
Triggering mechanisms for solar flares
Period Obligations
12/06/71-11/30/80 FY80: \$4,700 TOTAL: \$581,898
Prin Invest NASA Tech Officer CASE Category
Wu, S. T. MSFC/Hanssen, T. 13-Physics

NAS 8-29316 University of Alabama - Huntsville 1041
Working model of the London moment readout system
Period Obligations
10/06/72-02/15/81 FY80: \$74,985 TOTAL: \$698,181
Prin Invest NASA Tech Officer CASE Category
Hendricks, J. B. MSFC/Decher, R. 46-Mech Engr
MSFC/Urban, E. W.

NAS 8-30563 University of Alabama - Huntsville 1042
Study of magnetospheric and laboratory plasma physics experiments
Period Obligations
09/01/74-04/30/81 FY80: \$122,000 TOTAL: \$466,669
Prin Invest NASA Tech Officer CASE Category
Comfort, R. H. MSFC/Chappell, C. R. 13-Physics
Horwitz, J. L. MSFC/Fields, S. F.

NAS 8-31170 University of Alabama - Huntsville 1043
Study of efficient low power diffractometer designs
Period Obligations
01/15/75-03/01/81 FY80: \$22,497 TOTAL: \$160,888
Prin Invest NASA Tech Officer CASE Category
Gregory, J. C. MSFC/Parnell, T. A. 13-Physics
MSFC/Eby, P. B.

NAS 8-31171 University of Alabama - Huntsville 1044
Study of internal wave motions on the neutral atmosphere
Period Obligations
02/14/75-09/30/80 FY80: TOTAL: \$136,000
Prin Invest NASA Tech Officer CASE Category
Hung, R. J. MSFC/West, G. S. 39-Env Sci, NEC
MSFC/Smith, R. E.

NAS 8-31293 University of Alabama - Huntsville 1045
Solar heating and cooling technical data and systems analysis
Period Obligations
11/07/74-09/30/81 FY80: \$604,087 TOTAL: \$1,629,091
Prin Invest NASA Tech Officer CASE Category
Christensen, D. MSFC/Price, J. M. 13-Physics

NAS 8-31729 University of Alabama - Huntsville 1046
Numerical simulation of warm fogs
Period Obligations
11/05/75-07/31/80 FY80: TOTAL: \$74,000
Prin Invest NASA Tech Officer CASE Category
Hur, R. J. MSFC/Vaughn, O. H. 13-Physics
MSFC/Anderson, B. J.

NAS 8-31895 University of Alabama - Huntsville 1047
Investigations in cosmic ray and gamma ray astronomy and nuclear instruments
Period Obligations
03/19/76-05/31/81 FY80: \$62,000 TOTAL: \$270,000
Prin Invest NASA Tech Officer CASE Category
Gregory, J. C. MSFC/Parnell, T. A. 13-Physics

NAS 8-32818 University of Alabama - Huntsville 1048
Infrared telescope cryogenic system design and development
Period Obligations
03/31/78-05/06/81 FY80: \$69,998 TOTAL: \$224,817
Prin Invest NASA Tech Officer CASE Category
Karr, G. R. MSFC/Urban, E. W. 13-Physics
Hendricks, J. B. MSFC/Smith, G. T.

NAS 8-33096 University of Alabama - Huntsville 1049
Design automation of digital systems
Period Obligations
08/09/78-09/30/81 FY80: \$46,373 TOTAL: \$106,278
Prin Invest NASA Tech Officer CASE Category
Shiva, S. G. MSFC/Jones, R. E. 22-Computer Science
MSFC/Gould, J. M.

NAS 8-33132 University of Alabama - Huntsville 1050
Orbiting space science platform
Period Obligations
06/01/78-12/21/80 FY80: \$73,628 TOTAL: \$126,353
Prin Invest NASA Tech Officer CASE Category
Wu, S. T. MSFC/Snoddy, W. C. 19-Phys Sci, NEC
MSFC/Hickey, J. D.

NAS 8-33216 University of Alabama - Huntsville 1051
Dynamic simulation of coronal mass ejections
Period Obligations
10/27/78-12/31/79 FY80: TOTAL: \$35,800
Prin Invest NASA Tech Officer CASE Category
Steinolfson, R. S. MSFC/DeLoach, A. C. 13-Physics
Wu, S. T. MSFC/Snoddy, W. C.

NASA'S UNIVERSITY PROGRAM ALABAMA (Continued)

NAS 8-33377 University of Alabama - Huntsville **1052**
Analysis and modeling of materials space environmental effects data

Period	Obligations	
06/22/79-11/30/80	FY80: \$47,972	TOTAL: \$74,972
Prin Invest	NASA Tech Officer	CASE Category
Davis, J. H.	MSFC/Whitaker, A. F.	
Castle, J. S.	MSFC/Peacock, C. L.	47-Materials Engr

NAS 8-33384 University of Alabama - Huntsville **1053**
Test facility helium-3 refrigerator research

Period	Obligations	
05/31/79-11/30/81	FY80: \$54,993	TOTAL: \$72,322
Prin Invest	NASA Tech Officer	CASE Category
Hendricks, J. B.	MSFC/Ladner, E. R.	12-Chemistry
	MSFC/Urban, E. W.	

NAS 8-33443 University of Alabama - Huntsville **1054**
Solar-terrestrial relationships

Period	Obligations	
04/18/79-05/04/81	FY80: \$6,300	TOTAL: \$51,300
Prin Invest	NASA Tech Officer	CASE Category
Wu, S. T.	MSFC/Morgan, S. H.	19-Phys Sci, NEC
	MSFC/Laurine, J.	

NAS 8-33525 University of Alabama - Huntsville **1055**
Analysis and application of vector magnetic field data in predicting flares

Period	Obligations	
03/03/80-03/02/81	FY80: \$40,207	TOTAL: \$40,207
Prin Invest	NASA Tech Officer	CASE Category
Krall, K. R.	MSFC/Hanssen, E.	31-Atmos Sci
Wu, S. T.	MSFC/Smith, G. T.	
Smith, J. B.		

NAS 8-33526 University of Alabama - Huntsville **1056**
Data analysis and modeling of ultraviolet spectrometer and polarimeter (UVSP) experiment and other related experiments for solar maximum mission (SMM)

Period	Obligations	
02/29/80-06/28/82	FY80: \$80,000	TOTAL: \$80,000
Prin Invest	NASA Tech Officer	CASE Category
Wu, S. T.	MSFC/Tandberghanssen, E.	
	MSFC/Watkins, J. R.	31-Atmos Sci

NAS 8-33542 University of Alabama - Huntsville **1057**
Advanced furnace development and scientific coordination activity

Period	Obligations	
06/29/79-09/30/81	FY80: \$20,000	TOTAL: \$68,955
Prin Invest	NASA Tech Officer	CASE Category
Hendricks, J. B.	MSFC/Bass, B. G.	47-Materials Engr
	MSFC/Horton, J.	

NAS 8-33548 University of Alabama - Huntsville **1058**
An X-ray diffraction analysis Ne3Ge

Period	Obligations	
07/11/79-10/10/80	FY80:	TOTAL: \$10,104
Prin Invest	NASA Tech Officer	CASE Category
Davis, J. H.	MSFC/Lacy, L. L.	47-Materials Engr
	MSFC/Rathz, T. J.	

NAS 8-33726 University of Alabama - Huntsville **1059**
Study effects of internal wave on the neutral atmosphere

Period	Obligations	
02/11/80-02/07/81	FY80: \$80,000	TOTAL: \$80,000
Prin Invest	NASA Tech Officer	CASE Category
Hung, R. J.	MSFC/West, C. W.	32-Geological Sci

NAS 8-33731 University of Alabama - Huntsville **1060**
Containerless processing technology analysis

Period	Obligations	
05/09/80-09/14/81	FY80: \$60,000	TOTAL: \$60,000
Prin Invest	NASA Tech Officer	CASE Category
Rush, J. E.	MSFC/Ross, B. B.	13-Physics
	MSFC/Oran, W. A.	

NAS 8-33889 University of Alabama - Huntsville **1061**
Product end user analysis including environmental, safety and retrofit problems for medium Btu synthesis gas

Period	Obligations	
04/30/80-08/29/80	FY80: \$11,657	TOTAL: \$11,657
Prin Invest	NASA Tech Officer	CASE Category
Proffitt, S.	MSFC/Rutland, C. M.	39-Env Sci, NEC

NAS 8-33975 University of Alabama - Huntsville **1062**
High energy cosmic ray balloon flight investigations

Period	Obligations	
06/13/80-06/12/81	FY80: \$36,688	TOTAL: \$36,688
Prin Invest	NASA Tech Officer	CASE Category
Gregory, J. C.	MSFC/Fishman, G. J.	13-Physics
	MSFC/Parnell, T. A.	

NAS 8-33977 University of Alabama - Huntsville **1063**
X-ray astronomy instrumentation studies

Period	Obligations	
07/18/80-07/17/81	FY80: \$15,997	TOTAL: \$15,997
Prin Invest	NASA Tech Officer	CASE Category
Gregory, J. C.	MSFC/Weisskopf, M. C.	11-Astronomy
	MSFC/Parnell, T. A.	

NAS 8-33978 University of Alabama - Huntsville **1064**
New polymers for low-gravity purification of cells by partitioning

Period	Obligations	
09/10/80-10/09/82	FY80: \$46,000	TOTAL: \$46,000
Prin Invest	NASA Tech Officer	CASE Category
Harris, J. M.	MSFC/Bannister, T. C.	12-Chemistry
	MSFC/Snyder, R.	

NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)

NAS 8-33982 University of Alabama - Huntsville **1065**
Plasma and magnetospheric research
Period *Obligations*
08/27/80-06/26/81 FY80: \$89,500 TOTAL: \$89,500
Prin Invest *NASA Tech Officer* *CASE Category*
Comfort, R. H. MSFC/Chappell, C. R. 13-Physics
Horwitz, J. L. MSFC/Fields, S. A.

NAS 8-34129 University of Alabama - Huntsville **1066**
Data based management system analysis
Period *Obligations*
09/19/80-10/19/80 FY80: \$18,599 TOTAL: \$18,599
Prin Invest *NASA Tech Officer* *CASE Category*
Horwitz, J. L. MSFC/Green, J. L. 22-Computer Science

NAS 8-34187 University of Alabama - Huntsville **1067**
Geostationary platform workshop
Period *Obligations*
09/02/80-03/01/81 FY80: \$34,844 TOTAL: \$34,844
Prin Invest *NASA Tech Officer* *CASE Category*
Carter, L. MSFC/Carey, T. 19-Phys Sci, NEC

NGT 01-002-081 University of Alabama - Huntsville **1068**
Modeling of the evolution of magnetic field structure in an active region
Period *Obligations*
09/01/80-08/31/81 FY80: \$7,200 TOTAL: \$7,200
Prin Invest *NASA Tech Officer* *CASE Category*
Wu, S. T. MSFC/Tandberghanssen, E.
HD-LU/Carter, C. H. 19-Phys Sci, NEC

NGT 01-002-082 University of Alabama - Huntsville **1069**
Correlations between auroral features and low-energy ion characteristics in the magnetosphere
Period *Obligations*
09/01/80-08/31/81 FY80: \$7,200 TOTAL: \$7,200
Prin Invest *NASA Tech Officer* *CASE Category*
Horwitz, J. L. MSFC/Green, J. L. 13-Physics
HD-LU/Carter, C. H.

NGT 01-002-083 University of Alabama - Huntsville **1070**
Graduate student researchers program
Period *Obligations*
09/01/80-08/31/81 FY80: \$7,200 TOTAL: \$7,200
Prin Invest *NASA Tech Officer* *CASE Category*
Karr, G. R. MSFC/Urban, E. W. 46-Mech Engr

NGT 01-008-021 University of Alabama - Huntsville **1071**
Summer faculty fellowship program
Period *Obligations*
01/01/76-03/31/81 FY80: TOTAL: \$370,961
Prin Invest *NASA Tech Officer* *CASE Category*
Karr, G. R. HD-LU/Carter, C. H. 49-Engr, NEC

NSG 5413 University of Alabama - Huntsville **1072**
Pitch angle distributions of thermal ions in the inner thermosphere
Period *Obligations*
10/01/79-09/30/80 FY80: \$25,000 TOTAL: \$25,000
Prin Invest *NASA Tech Officer* *CASE Category*
Horwitz, J. L. GSFC/Corrigan, J. P. 11-Astronomy

NAS 8-33430 University of Alabama - University **1073**
Solid state switch design for large space structure technology
Period *Obligations*
04/05/79-12/31/79 FY80: \$500 TOTAL: \$26,622
Prin Invest *NASA Tech Officer* *CASE Category*
Raburn, W. D. MSFC/Williams, D. E. 45-Elec Engr
MSFC/Loggins, R. W.

NAS 8-33507 University of Alabama - University **1074**
Space shuttle induced environment contamination monitor (IECM) air sampler experiment
Period *Obligations*
05/21/79-03/21/83 FY80: TOTAL: \$24,000
Prin Invest *NASA Tech Officer* *CASE Category*
Bertsch, W. MSFC/Peters, P. N. 31-Atmos Sci
Zatko, D. A. MSFC/Hester, H. B.

NGT 01-002-099 University of Alabama - University **1075**
Summer faculty fellowship program in research
Period *Obligations*
01/01/78-03/31/81 FY80: \$197,526 TOTAL: \$346,100
Prin Invest *NASA Tech Officer* *CASE Category*
Barfield, B. F. HD-LU/Carter, C. H. 49-Engr, NEC

ALASKA

SAG 6-1 University of Alaska - Fairbanks **1076**
Fluorescent plasma tracer and perturbation experiments from sounding rockets
Period *Obligations*
01/01/80-12/31/80 FY80: \$117,951 TOTAL: \$117,951
Prin Invest *NASA Tech Officer* *CASE Category*
Wescott, E. M. WFC/Early, I. J. 19-Phys Sci, NEC
WFC/Pless, R. H.

SAG 9-8 University of Alaska - Fairbanks **1077**
Applications of radar and infrared airborne remote sensing to geothermal research on Pilgrim Springs, Alaska
Period *Obligations*
02/01/80-11/30/80 FY80: \$55,000 TOTAL: \$55,000
Prin Invest *NASA Tech Officer* *CASE Category*
Forbes, R. B. JSC/Duke, M. B. 32-Geological Sci

NASA'S UNIVERSITY PROGRAM ALASKA (Continued)

NAG 9-9 University of Alaska - Fairbanks 1078
Application of airborne remote sensing to problems caused by increased volcanic heat flux of Mt. Wrangell

Period	Obligations	
06/01/80-05/31/81	FY80: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CSF Category</i>
Benson, C. S.	JSC/Duke, M. B.	32-Geological Sci

NAG 6-3065 University of Alaska - Fairbanks 1079
S/M and personnel for operation and maintenance of the Poker Flat Research Range

Period	Obligations	
11/01/79-10/08/80	FY80: \$820,507	TOTAL: \$820,507
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CSF Category</i>
Brown, N. B., Jr	WFC/Millner, C. E.	31-Atmos Sci
Roederer, J. G.	WFC/Gray, J. W.	

NCA 2-20001 University of Alaska - Fairbanks 1080
Stream corridor physiography of the Susitna River Basin, Alaska

Period	Obligations	
06/01/80-11/30/80	FY80: \$13,646	TOTAL: \$13,646
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CSF Category</i>
Stringer, W.	ARC/Johnson, R. D.	39-Env Sci, NEC
Dean, K. G.		

NCA 2-20002 University of Alaska - Fairbanks 1081
Enhancement of LANDSAT data for the analysis of subarctic wetlands

Period	Obligations	
08/15/80-11/15/80	FY80: \$5,134	TOTAL: \$5,134
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CSF Category</i>
Dean, K. G.	ARC/Wilson, D. E.	39-Env Sci, NEC
George, T. H.		

NCA 2-20902 University of Alaska - Fairbanks 1082
Regulation of nutrient availability and plant nutrient uptake in controlled environments

Period	Obligations	
09/01/79-08/31/81	FY80: \$17,302	TOTAL: \$17,302
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CSF Category</i>
Bloom, A. J.	ARC/MacElroy, R. D.	51-Biological Sci

NGI 02-001-092 University of Alaska - Fairbanks 1083
Application of remote sensing data to surveys of the Alaskan environment

Period	Obligations	
07/26/72-03/31/82	FY80	TOTAL: \$975,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CSF Category</i>
Miller, J. M.	HD-ET Vitale, J. A.	39-Env Sci, NEC

NSG 5219 University of Alaska - Fairbanks 1084
Auroral spectroscopy using atmosphere Explorer observations

Period	Obligations	
10/01/77-12/31/80	FY80	TOTAL: \$47,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CSF Category</i>
Rees, M. H.	GSFC/Spencer, N. W.	13-Physics

NSG 5409 University of Alaska - Fairbanks 1085
Study of magnetopause/boundary layer and plasma sheet structures

Period	Obligations	
09/15/79-10/14/81	FY80: \$25,000	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CSF Category</i>
Lee, L. C.	GSFC/Corrigan, J. P.	11-Astronomy

NSG 602a University of Alaska - Fairbanks 1086
Observations of 'firewheel' chemical releases

Period	Obligations	
05/01/79-04/30/81	FY80	TOTAL: \$23,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CSF Category</i>
Hallinan, T. J.	WFC/Gray, J. W.	19-Phys Sci, NEC
	WFC/Pless, R. H.	

NSG 7447 University of Alaska - Fairbanks 1087
Study of the relationship between the ring current and magnetospheric substorms, study of possible relationship of sudden stratospheric warmings with magnetospheric substorms

Period	Obligations	
06/01/78-05/31/81	FY80: \$95,000	TOTAL: \$125,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CSF Category</i>
Akasofu, S. I.	HD-ST/Hedin, A. E.	19-Phys Sci, NEC
	HD-ST/Schmerling, E. R.	

NSG 7625 University of Alaska - Fairbanks 1088
Numerical simulation of the turbulent cascade and voltage amplification mechanism in the magnetosphere

Period	Obligations	
07/01/79-06/30/81	FY80: \$17,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CSF Category</i>
Swift, O. W.	HD-ST/Hedin, A. E.	19-Phys Sci, NEC
	HD-ST/Schmerling, E. R.	

ARIZONA

NAG 3-6 Arizona State University 1089
Transient response of rotor bearing systems using component mode synthesis

Period	Obligations	
01/01/80-12/31/80	FY80: \$63,288	TOTAL: \$63,288
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CSF Category</i>
Nelson, H. D.	LERC/Fleming, D. P.	46-Mech Engr
Russell, S. J.	LERC/Kascak, A. E.	

NAG 3-105 Arizona State University 1090
Feasibility study of a New type of cascade solar cell

Period	Obligations	
09/22/80-06/21/81	FY80: \$9,956	TOTAL: \$9,956
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CSF Category</i>
Wang, F. Y.	LERC/Curtis, H. B.	13-Physics

NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)

NAG 3-112 **Arizona State University** **1091**
Parallel-processor simulation systems
Period *Obligations*
10/15/80-10/14/81 **FY80: \$64,218 TOTAL: \$64,218**
Prin Invest *NASA Tech Officer* *CASE Category*
Ogrady, E. P. LERC/Milner, E. J. 22-Computer Science
Higgins, W. T. LERC/Seuch, J. R.

NAG 9-4 **Arizona State University** **1092**
Matrix phases of carbonaceous chondrites
Period *Obligations*
02/01/80-01/31/81 **FY80: \$70,000 TOTAL: \$70,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Buseck, P. R. JSC/Harris, J. W. 32-Geological Sci

NAGW 1 **Arizona State University** **1093**
Planetary and Mars geomorphology
Period *Obligations*
02/01/80-01/31/81 **FY80: \$84,900 TOTAL: \$84,900**
Prin Invest *NASA Tech Officer* *CASE Category*
Malin, M. C. HD-SL/Boyce, J. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NAGW 24 **Arizona State University** **1094**
Aggregate formation and aeolian action on Mars
Period *Obligations*
04/15/80-04/14/81 **FY80: \$17,000 TOTAL: \$17,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Krinsley, D. HD-SL/Boyce, J. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NAGW 56 **Arizona State University** **1095**
Impact cratering experiments
Period *Obligations*
04/01/80-03/31/81 **FY80: \$18,585 TOTAL: \$18,585**
Prin Invest *NASA Tech Officer* *CASE Category*
Greeley, R. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NAS 8-32230 **Arizona State University** **1096**
Marshall mated element system translator
Period *Obligations*
12/15/76-11/13/78 **FY80: TOTAL: \$122,557**
Prin Invest *NASA Tech Officer* *CASE Category*
Woodfin, M. A. MSFC/Lee, G. 21-Mathematics
MSFC/Smith, J. G.

NAS 8-32357 **Arizona State University** **1097**
Building and obstacles wakes
Period *Obligations*
02/11/77-04/21/81 **FY80: \$24,953 TOTAL: \$99,783**
Prin Invest *NASA Tech Officer* *CASE Category*
Logan, E., Jr. MSFC/Camp, D. 31-Atmos Sci
MSFC/Alexander, M. B.

NAS 8-32937 **Arizona State University** **1098**
The effect of a dispersed second phase on the ionic conductivity of solid state electrolytes
Period *Obligations*
12/13/77-12/13/82 **FY80: TOTAL: \$201,500**
Prin Invest *NASA Tech Officer* *CASE Category*
Wagner, J. B. MSFC/Reeves, F. A. 47-Materials Engr
MSFC/Rathz, T.

NCA 2-35001 **Arizona State University** **1099**
Size-frequency analysis of simulated Martian aeolian silt and clay
Period *Obligations*
07/01/80-06/30/81 **FY80: \$20,914 TOTAL: \$20,914**
Prin Invest *NASA Tech Officer* *CASE Category*
Krinsley, D. ARC/Pollack, J. B. 32-Geological Sci
Greeley, R.

NGI 03-001-001 **Arizona State University** **1100**
Development of improved procedures for sampling, characterizing and classifying meteorite specimens
Period *Obligations*
04/16/63-03/02/81 **FY80: \$29,399 TOTAL: \$389,722**
Prin Invest *NASA Tech Officer* *CASE Category*
Moore, C. B. HD-SL/French, B. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NGT 03-001-000 **Arizona State University** **1101**
Graduate student researchers program
Period *Obligations*
06/01/80-05/31/81 **FY80: \$10,860 TOTAL: \$10,860**
Prin Invest *NASA Tech Officer* *CASE Category*
Moore, C. B. JSC/Blanchard, D. P. 12-Chemistry

NSG 2284 **Arizona State University** **1102**
Aeolian geology studies
Period *Obligations*
12/01/77-12/31/80 **FY80: \$17,880 TOTAL: \$81,756**
Prin Invest *NASA Tech Officer* *CASE Category*
Greeley, R. ARC/Pollack, J. B. 19-Phys Sci, NEC

NSG 3075 **Arizona State University** **1103**
Study of multiple jet array impingement heat transfer characteristics
Period *Obligations*
09/01/75-10/28/80 **FY80: TOTAL: \$298,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Metzger, D. E. LERC/Hippensteele, S. A. 41-Aero Engr

NSG 7040 **Arizona State University** **1104**
The origin and early evolution of the solar system
Period *Obligations*
04/01/74-02/28/81 **FY80: \$55,500 TOTAL: \$284,467**
Prin Invest *NASA Tech Officer* *CASE Category*
Larimer, J. W. HD-SL/French, B. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NASA'S UNIVERSITY PROGRAM ARIZONA (Continued)

NSG 7255 Arizona State University **1105**
The nature and origin of organic compounds in carbonaceous meteorites
Period *Obligations*
06/14/76-01/31/81 FY80: \$54,789 TOTAL: \$202,164
Prin Invest NASA Tech Officer CASE Category
Cronin, J. R. HD-SB/Devincenzi, D. L.
Yuen, G. U. 32-Geological Sci

NSG 7415 Arizona State University **1106**
Geological studies in planetology
Period *Obligations*
12/01/77-02/28/81 FY80: \$324,284 TOTAL: \$644,596
Prin Invest NASA Tech Officer CASE Category
Greeley, R. HD-SL/Boyce, J. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NSG 7421 Arizona State University **1107**
Analysis of lunar mare emplacement and impact cratering experiments
Period *Obligations*
02/01/78-05/31/80 FY80: TOTAL: \$68,354
Prin Invest NASA Tech Officer CASE Category
Greeley, R. HD-SL/Dwornik, S. E. 32-Geological Sci

NSG 7548 Arizona State University **1108**
Studies in Martian geology
Period *Obligations*
03/01/79-09/30/80 FY80: \$108,981 TOTAL: \$188,191
Prin Invest NASA Tech Officer CASE Category
Greeley, R. HD-SL/Boyce, J. M. 31-Atmos Sci
HD-SL/Quaide, W. L.

NSG 7630 Arizona State University **1109**
The effects of topography, albedo and thermal inertia variations on the generation of mesoscale Martian wind patterns
Period *Obligations*
07/01/79-12/31/80 FY80: \$20,515 TOTAL: \$42,205
Prin Invest NASA Tech Officer CASE Category
Rankin, R. L. HD-SL/Boyce, J. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NSG 7642 Arizona State University **1110**
Development of Martian terraced-ejecta deposits
Period *Obligations*
10/01/79-02/28/81 FY80: TOTAL: \$29,556
Prin Invest NASA Tech Officer CASE Category
Sheridan, M. HD-SL/Dwornik, S. E. 32-Geological Sci

NAG 2-1 University of Arizona **1111**
The radial velocity search for extrasolar planets
Period *Obligations*
10/01/80-12/31/80 FY80: \$25,530 TOTAL: \$25,530
Prin Invest NASA Tech Officer CASE Category
Serkowski, K. M. ARC/Black, D. C. 11-Astronomy

NAG 2-55 University of Arizona **1112**
The study of star formation and molecular cloud evolution with the Kuiper Airborne Observatory
Period *Obligations*
10/01/80-09/30/81 FY80: \$15,500 TOTAL: \$15,500
Prin Invest NASA Tech Officer CASE Category
Thronson, H. ARC/Haughney, L. C. 11-Astronomy
Lada, C. J.
Smith, H. A.

NAG 3-41 University of Arizona **1113**
The application of probabilistic design theory to high temperature low cycle fatigue
Period *Obligations*
06/01/80-05/31/81 FY80: \$35,373 TOTAL: \$35,373
Prin Invest NASA Tech Officer CASE Category
Wirsching, P. H. LERC/Thompson, R. L. 47-Materials Engr

NAG 3-45 University of Arizona **1114**
NASA/Lewis Research Center computational structures apprenticeships
Period *Obligations*
05/01/80-04/30/81 FY80: \$65,613 TOTAL: \$65,613
Prin Invest NASA Tech Officer CASE Category
Gallagher, R. H. LERC/Chamis, C. C. 41-Aero Engr
Kamel, H. A. LERC/Johns, R. H.

NAG 5-34 University of Arizona **1115**
New seeing-limited studies of emission nebulae
Period *Obligations*
04/01/80-03/31/81 FY80: \$14,791 TOTAL: \$14,791
Prin Invest NASA Tech Officer CASE Category
Craine, E. R. GSFC/Gull, T. R. 11-Astronomy
GSFC/Boggess, A.

NAG 5-38 University of Arizona **1116**
Study of the hottest White dwarfs from the palmer-green study
Period *Obligations*
04/01/80-09/30/81 FY80: \$19,205 TOTAL: \$19,205
Prin Invest NASA Tech Officer CASE Category
Green, R. F. GSFC/Boggess, A. 11-Astronomy
Liebert, L.

NAG 5-56 University of Arizona **1117**
Ultraviolet spectroscopy of heavy element abundances in the novae
Period *Obligations*
05/15/80-05/14/81 FY80: \$3,089 TOTAL: \$3,089
Prin Invest NASA Tech Officer CASE Category
Williams, R. E. GSFC/Boggess, A. 11-Astronomy

NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)

NAG 5-57 **University of Arizona** **1118**
 Evolution of the chromospheres transition regions in dwarf stars
Period Obligations
 05/15/80-05/14/81 FY80: \$7,972 TOTAL: \$7,972
Prin Invest NASA Tech Officer CASE Category
 Giampapa, M. S. GSFC/Bogges, A. 11-Astronomy
 Worden, S. P.

NAGW 67 **University of Arizona** **1125**
 Investigation of the chemical dynamics of the Venus atmosphere
Period Obligations
 06/01/80-05/31/81 FY80: \$31,024 TOTAL: \$31,024
Prin Invest NASA Tech Officer CASE Category
 Sill, G. T. HD-SL/Murphy, R. E. 31-Atmos Sci
 HD-SL/Brunk, W. E.

NAG 5-76 **University of Arizona** **1119**
 Study of an optical spectrometer to measure atmospheric composition from entry probes
Period Obligations
 06/01/80-05/31/81 FY80: \$10,003 TOTAL: \$10,003
Prin Invest NASA Tech Officer CASE Category
 Tomasko, M. G. GSFC/Spencer, N. W. 31-Atmos Sci

NAS 1-14332 **University of Arizona** **1126**
 Stratospheric aerosol measurement experiment
Period Obligations
 03/19/76-09/30/80 FY80: \$10,167 TOTAL: \$130,167
Prin Invest NASA Tech Officer CASE Category
 Herman, B. M. LARC/McCormick, M. P. 31-Atmos Sci
 LARC/McMaster, L. R.

NAG 5-86 **University of Arizona** **1120**
 Spectroscopic observations of comets
Period Obligations
 07/01/80-06/30/81 FY80: \$3,000 TOTAL: \$3,000
Prin Invest NASA Tech Officer CASE Category
 Larson, S. GSFC/Donn, B. 11-Astronomy,

NAS 1-14928 **University of Arizona** **1127**
 Stratospheric aerosol and gas experiment
Period Obligations
 07/21/77-06/30/81 FY80: TOTAL: \$60,000
Prin Invest NASA Tech Officer CASE Category
 Herman, B. M. LARC/McMaster, L. R. 31-Atmos Sci
 LARC/McCormick, M. P.

NAG 8-321 **University of Arizona** **1121**
 The X-ray properties of well-studied intermediate and large redshift quasi stellar objects A pilot study
Period Obligations
 03/10/80-03/09/81 FY80: \$4,076 TOTAL: \$4,076
Prin Invest NASA Tech Officer CASE Category
 Strittmatter, P. A. MSFC/Jones, J. B. 11-Astronomy
 Smith, M. G.
 Condon, J. J.

NAS 2-6265 **University of Arizona** **1128**
 Imaging photopolarimeter experiment data analysis Pioneer 10 and 11
Period Obligations
 11/01/70-01/31/81 FY80: \$380,110 TOTAL: \$2,363,179
Prin Invest NASA Tech Officer CASE Category
 Gehrels, A. M. ARC/Hall, C. F. 11-Astronomy
 Tomasko, M. G. ARC/Porter, D. L.
 Dooze, L.

NAG 8-370 **University of Arizona** **1122**
 The X-ray properties of close pairs of galaxies and low spectral resolution optical survey of the HEAO-B high resolution imager and imaging proportional counter fields
Period Obligations
 08/15/80-08/14/81 FY80: \$17,189 TOTAL: \$17,189
Prin Invest NASA Tech Officer CASE Category
 Stocke, J. T. MSFC/Stone, J. F. 11-Astronomy

NAS 2-9487 **University of Arizona** **1129**
 Pioneer Venus data analysis
Period Obligations
 01/06/78-09/30/80 FY80: \$20,000 TOTAL: \$131,365
Prin Invest NASA Tech Officer CASE Category
 Hunter, D. M. ARC/Fimmel, R. O. 31-Atmos Sci
 ARC/Dyer, J.

NAG 8-380 **University of Arizona** **1123**
 Survey of bright (PG) quasars
Period Obligations
 08/22/80-08/21/81 FY80: \$8,623 TOTAL: \$8,623
Prin Invest NASA Tech Officer CASE Category
 Green, R. F. MSFC/Stone, J. F. 11-Astronomy

NAS 2-10436 **University of Arizona** **1130**
 15 um detectors for shuttle infrared telescope facility
Period Obligations
 11/01/79-10/30/80 FY80: \$15,000 TOTAL: \$15,000
Prin Invest NASA Tech Officer CASE Category
 Davidson, A. ARC/McCreight, C. R. 11-Astronomy

NAGW 55 **University of Arizona** **1124**
 Absorption of sunlight in the atmosphere of Venus
Period Obligations
 01/01/80-12/31/80 FY80: \$74,887 TOTAL: \$74,887
Prin Invest NASA Tech Officer CASE Category
 Tomasko, M. G. HD-SL/Murphy, R. E. 41-Aero Engr
 HD-SL/Brunk, W. E.

NAS 5-24308 **University of Arizona** **1131**
 Study of suitability of Starlab for solar system studies
Period Obligations
 09/27/77-06/30/81 FY80: TOTAL: \$17,585
Prin Invest NASA Tech Officer CASE Category
 Smith, B. A. GSFC/Eirand, A. M. 11-Astronomy

NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)

NAS 5-25484 **University of Arizona** **1132**
 Support to the space telescope wide field planetary camera development team
Period *Obligations*
 02/01/79-10/30/80 FY80: \$30,000 TOTAL: \$62,964
Prin Invest NASA Tech Officer CASE Category
 Smith, B. A. GSFC/Sours, W. T. 31-Atmos Sci

NAS 5-25733 **University of Arizona** **1133**
 Space telescope/High Resolution Spectrograph (HRS) extragalactic studies
Period *Obligations*
 06/18/79-03/31/81 FY80: \$2,781 TOTAL: \$5,781
Prin Invest NASA Tech Officer CASE Category
 Weymann, R. J. GSFC/Liberatore, F. J. 11-Astronomy

NAS 5-25955 **University of Arizona** **1134**
 Scientific activities of the high resolution ultraviolet spectrometer and polarimeter for the solar maximum mission
Period *Obligations*
 11/14/79-02/28/82 FY80: \$12,000 TOTAL: \$12,000
Prin Invest NASA Tech Officer CASE Category
 Beckers, J. M. GSFC/Kalet, M. W. 11-Astronomy
 GSFC/Woodgate, B. E.

NAS 5-26176 **University of Arizona** **1135**
 Solar diameter measurements for study of Sun climate coupling
Period *Obligations*
 06/04/80-06/04/81 FY80: \$26,000 TOTAL: \$26,000
Prin Invest NASA Tech Officer CASE Category
 Hill, H. A. GSFC/Wolff, C. L. 31-Atmos Sci

NAS 8-31192 **University of Arizona** **1136**
 Maintenance and operation of the 60 inch NASA telescope at Mt. Lemmon
Period *Obligations*
 10/01/74-12/31/79 FY80: TOTAL: \$374,207
Prin Invest NASA Tech Officer CASE Category
 Renton, E. V. MSFC/Parnell, T. A. 11-Astronomy
 MSFC/Bass, B. G.

NAS 8-31948 **University of Arizona** **1137**
 Automated analytical electrophoresis apparatus
Period *Obligations*
 05/17/76-12/31/80 FY80: TOTAL: \$299,305
Prin Invest NASA Tech Officer CASE Category
 Bartels, P. H. MSFC/Snyder, R. S. 59-Life Sci, NEC
 MSFC/Nerren, B. H.

NAS 8-32950 **University of Arizona** **1138**
 Hormone purification by isoelectric focusing in space
Period *Obligations*
 03/29/78-03/29/81 FY80: \$85,000 TOTAL: \$222,800
Prin Invest NASA Tech Officer CASE Category
 Bier, M. MSFC/Bannister, T. C. 59-Life Sci, NEC
 Barstow, L. E. MSFC/Snyder, R. S.
 Jewett, W. R.

NAS 8-33351 **University of Arizona** **1139**
 Low spectral resolution optical survey of the HEAO-B high resolution imager fields
Period *Obligations*
 05/23/79-05/22/80 FY80: TOTAL: \$21,260
Prin Invest NASA Tech Officer CASE Category
 Strittmatter, P. A. MSFC/Jones, J. B., Jr. 11-Astronomy

NAS 8-33718 **University of Arizona** **1140**
 Lightning detection from space
Period *Obligations*
 02/11/80-02/10/81 FY80: \$40,000 TOTAL: \$40,000
Prin Invest NASA Tech Officer CASE Category
 Krider, E. P. MSFC/Wagnon, F. W. 49-Engr, NEC
 MSFC/Harper, J. W.

NAS 8-33720 **University of Arizona** **1141**
 Conceptual design study of lightning optical/sensor systems
Period *Obligations*
 02/07/80-02/06/81 FY80: \$39,860 TOTAL: \$39,860
Prin Invest NASA Tech Officer CASE Category
 Wolfe, W. L. MSFC/Wagnon, F. W. 49-Engr, NEC
 MSFC/Barnes, T. G.

NAS 8-33732 **University of Arizona** **1142**
 Maintenance and operation of the 60 inch NASA telescope
Period *Obligations*
 01/02/80-01/01/81 FY80: \$86,400 TOTAL: \$86,400
Prin Invest NASA Tech Officer CASE Category
 Larson, H. P. MSFC/Fishman, G. J. 11-Astronomy
 MSFC/Parnell, T. A.

NAS 8-33815 **University of Arizona** **1143**
 Computer studies of baroclinic stability in spherical geometry
Period *Obligations*
 03/07/80-03/06/81 FY80: \$24,560 TOTAL: \$24,560
Prin Invest NASA Tech Officer CASE Category
 Gall, R. L. MSFC/Fowles, W. W. 31-Atmos Sci
 MSFC/Fitch, G. H.

NASW 3262 **University of Arizona** **1144**
 Colloquium and book on asteroids and planets
Period *Obligations*
 04/23/79-03/30/80 FY80: TOTAL: \$14,700
Prin Invest NASA Tech Officer CASE Category
 Gehrels, A. M. HD-SL/Brunk, W. E. 11-Astronomy

NASW 3413 **University of Arizona** **1145**
 Colloquium and book on comets
Period *Obligations*
 11/01/80-10/31/81 FY80: \$15,267 TOTAL: \$15,267
Prin Invest NASA Tech Officer CASE Category
 Wilkening, L. L. HD-SL/Brunk, W. E. 11-Astronomy
 HD-SL/Murphy, R. E.

NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)

NAS10-8518 **University of Arizona** **1146**
 Thunderstorm electrical field changes and associated meteorological conditions of KSC
Period *Obligations*
 02/12/74-03/01/81 FY80: \$30,000 **TOTAL: \$191,600**
Prin Invest *NASA Tech Officer* *CASE Category*
 Krider, E. P. KSC/Jafferis, W. 31-Atmos Sci

NCA 2-40001 **University of Arizona** **1147**
 A high angular resolution far infrared study of star formation in the M17 region
Period *Obligations*
 07/01/80-10/01/80 FY80: \$7,590 **TOTAL: \$7,590**
Prin Invest *NASA Tech Officer* *CASE Category*
 Harvey, P. M. ARC/Werner, M. W. 11-Astronomy

NCA 5-93 **University of Arizona** **1148**
 Spectroscopic observations of comets
Period *Obligations*
 09/06/78-07/01/79 FY80: **TOTAL: \$3,000**
Prin Invest *NASA Tech Officer* *CASE Category*
 Martineck, S. GSFC/Donn, B. 31-Atmos Sci

NCA 5-94 **University of Arizona** **1149**
 Infrared absorption studies of clathrates and hydrate ices
Period *Obligations*
 01/23/79-03/31/80 FY80: **TOTAL: \$14,785**
Prin Invest *NASA Tech Officer* *CASE Category*
 Fink, U. GSFC/Pearl, J. C. 13-Physics

NGL 03-002-002 **University of Arizona** **1150**
 Planetary, spectroscopic, selenodetic and physical studies of lunar surface
Period *Obligations*
 08/17/61-05/31/81 FY80: \$65,195 **TOTAL: \$2,854,445**
Prin Invest *NASA Tech Officer* *CASE Category*
 Smith, B. A. HD-SL/Brunk, W. E. 11-Astronomy
 HD-SL/Murphy, R. E.

NGL 03-002-019 **University of Arizona** **1151**
 High resolution electron microscopic techniques to study biological material
Period *Obligations*
 06/07/63-08/31/79 FY80: **TOTAL: \$471,055**
Prin Invest *NASA Tech Officer* *CASE Category*
 Hoenig, S. A. HD-SL/Fellows, R. F. 31-Atmos Sci
 HD-SL/Brunk, W. E.

NGL 03-002-081 **University of Arizona** **1152**
 Photometry and polarimetry of minor planets
Period *Obligations*
 03/14/66-09/30/80 FY80: \$40,000 **TOTAL: \$509,225**
Prin Invest *NASA Tech Officer* *CASE Category*
 Gehrels, T. HD-SL/Brunk, W. E. 11-Astronomy
 HD-SL/Murphy, R. E.

NGL 03-002-122 **University of Arizona** **1153**
 Astrometric and astrophysical investigation of comets, minor planets, and satellites
Period *Obligations*
 02/22/67-04/30/79 FY80: **TOTAL: \$213,984**
Prin Invest *NASA Tech Officer* *CASE Category*
 Cox, E. L. HD-SL/Brunk, W. E. 11-Astronomy
 HD-SL/Fellows, R. F.

NGL 03-002-191 **University of Arizona** **1154**
 Lunar surface and planetology study
Period *Obligations*
 05/16/69-09/30/79 FY80: **TOTAL: \$568,770**
Prin Invest *NASA Tech Officer* *CASE Category*
 Strom, R. G. HD-SL/Bohlin, J. M. 32-Geological Sci
 HD-SL/Flinn, E. A.

NGL 03-002-313 **University of Arizona** **1155**
 Remote sensing applications for state and local government
Period *Obligations*
 03/07/72-02/28/83 FY80: \$125,000 **TOTAL: \$975,000**
Prin Invest *NASA Tech Officer* *CASE Category*
 Johnson, J. D. HD-ET/Vitale, J. A. 39-Env Sci, NEC

NGR 03-002-107 **University of Arizona** **1156**
 Basic research in astrophysics and space science
Period *Obligations*
 09/01/67-08/31/80 FY80: \$40,000 **TOTAL: \$678,063**
Prin Invest *NASA Tech Officer* *CASE Category*
 Hsieh, K. C. HD-ST/Hedin, A. F. 13-Physics
 HD-ST/Schmerling, E. R.

NGR 03-002-171 **University of Arizona** **1157**
 Analysis of carbonaceous meteorites
Period *Obligations*
 10/26/68-03/31/81 FY80: \$66,884 **TOTAL: \$638,884**
Prin Invest *NASA Tech Officer* *CASE Category*
 Nagy, B. HD-SB/Devincenzi, D. L. 32-Geological Sci

NGR 03-002-219 **University of Arizona** **1158**
 Photopolarimetry of Mercury, Mars, and satellites
Period *Obligations*
 02/13/70-10/31/80 FY80: \$37,820 **TOTAL: \$387,235**
Prin Invest *NASA Tech Officer* *CASE Category*
 Gehrels, A. M. HD-SL/Brunk, W. E. 11-Astronomy
 HD-SL/Murphy, R. E.

NGR 03-002-269 **University of Arizona** **1159**
 Operation of a 30 cm flying infrared telescope
Period *Obligations*
 05/04/71-07/31/81 FY80: \$71,000 **TOTAL: \$639,336**
Prin Invest *NASA Tech Officer* *CASE Category*
 Low, F. J. HD-SC/Bogges, N. W. 11-Astronomy
 HD-SC/Weiler, E. J.

NASA'S UNIVERSITY PROGRAM **ARIZONA (Continued)**

NGR 03-002-332 **University of Arizona** **1160**
Infrared spectroscopy of the planets from 1-5.6 micron with the medium-resolution LPL Fournier interferometer

Period	Obligations	
03/05/73-10/31/80	FY80: \$105,000	TOTAL: \$625,357
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Larson, H. P.	ARC/Haughney, L. C.	11-Astronomy
	ARC/Gillespie, C. M.	

NGR 03-002-370 **University of Arizona** **1161**
An investigation of electromagnetic processes in the early solar system with bearing on thermal evolution and fossil magnetism

Period	Obligations	
10/01/73-12/31/80	FY80: \$44,298	TOTAL: \$278,257
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sonett, C. P.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/Boyce, J. M.	

NGR 03-002-371 **University of Arizona** **1162**
Far infrared observations of galactic and extra-galactic sources of radiation

Period	Obligations	
09/01/73-11/30/80	FY80: \$90,000	TOTAL: \$450,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Campbell, M.	HD-SC/Bogges, N. W.	11-Astronomy
Hoffman, W. F.	HD-SC/Roman, N. G.	

NGR 03-002-390 **University of Arizona** **1163**
Mapping structure of galactic center

Period	Obligations	
10/01/73-10/31/80	FY80: \$112,004	TOTAL: \$388,737
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Harvey, P. M.	ARC/Haughney, L. C.	11-Astronomy
Thronson, H. A., Jr.		

NGT 03-002-800 **University of Arizona** **1164**
Graduate student training program in computational fluid dynamics

Period	Obligations	
07/01/80-05/30/81	FY80: \$74,699	TOTAL: \$74,699
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Seebass, A. R.	HD-RT/Graves, R. A.	41-Aero Engr

NSG 2112 **University of Arizona** **1165**
Inviscid transonic flow computations

Period	Obligations	
11/01/75-10/31/80	FY80:	TOTAL: \$221,991
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Seebass, A. R.	ARC/Ballhaus, W. F.	41-Aero Engr
Fung, K. Y.		
Sobieczky, H.		

NSG 2205 **University of Arizona** **1166**
Construction of a radial velocity meter for determining percentage of binaries among solar-type stars

Period	Obligations	
01/01/77-01/31/81	FY80: \$30,000	TOTAL: \$75,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Serkowski, K. M.	ARC/Black, D. C.	11-Astronomy

NSG 2381 **University of Arizona** **1167**
Cytofluorometric analysis of viral infection

Period	Obligations	
05/01/79-01/31/81	FY80: \$26,356	TOTAL: \$61,356
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Meinke, W. J.	ARC/Mandel, A.D.	56-Medical Sciences

NSG 5023 **University of Arizona** **1168**
Lightning detection study

Period	Obligations	
09/01/74-06/30/81	FY80: \$5,000	TOTAL: \$56,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ragsdell, K. J.	GSFC/LeVine, D. M.	31-Atmos Sci
Thompson, H. D.		

NSG 5235 **University of Arizona** **1169**
Research of the ultraviolet spectra of T Tauri and related stars

Period	Obligations	
02/19/78-04/08/81	FY80: \$7,865	TOTAL: \$14,163
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Imhoff, C. L.	GSFC/Bogges, A.	11-Astronomy
Giampapa, M. S.		

NSG 5249 **University of Arizona** **1170**
Spectrophotometry of planets, satellites and asteroids

Period	Obligations	
03/01/78-07/31/80	FY80: \$7,500	TOTAL: \$29,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tomasko, M. G.	GSFC/Bogges, A.	11-Astronomy
Zellner, B. H.	GSFC/West, D. K.	
Gehrels, A. M.		

NSG 5302 **University of Arizona** **1171**
Laser application of incoherent radiation

Period	Obligations	
09/15/78-09/14/79	FY80:	TOTAL: \$5,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lamb, W. E., Jr.	GSFC/McAvoy, N.	13-Physics

NSG 7011 **University of Arizona** **1172**
Radiation history of meteorites

Period	Obligations	
03/01/74-03/01/81	FY80: \$44,066	TOTAL: \$257,882
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilkering, L. L.	HD-SL/French, B. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	

NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)

NSG 7020 **University of Arizona** **1173**
Investigation of lunar induced and permanent magnetism in the
lunar data analysis and synthesis program
Period *Obligations*
03/01/74-01/31/81 FY80: \$90,719 TOTAL: \$694,035
Prin Invest *NASA Tech Officer* *CASE Category*
Sonett, C. P. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. E.

NSG 7024 **University of Arizona** **1174**
Study of the Earth's magnetosphere and solar wind
Period *Obligations*
02/01/74-10/31/80 FY80: \$101,565 TOTAL: \$439,665
Prin Invest *NASA Tech Officer* *CASE Category*
Sonett, C. P. HD-ST/Williamson, P. R. 13-Physics
HD-ST/Schmerling, E. R.

NSG 7045 **University of Arizona** **1175**
Interiors of the giant planets
Period *Obligations*
04/01/74-03/31/81 FY80: \$35,300 TOTAL: \$234,194
Prin Invest *NASA Tech Officer* *CASE Category*
Hubbard, W. B. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Fellows, R. F.

NSG 7070 **University of Arizona** **1176**
Planetary spectroscopy
Period *Obligations*
06/01/74-05/31/81 FY80: \$85,737 TOTAL: \$639,485
Prin Invest *NASA Tech Officer* *CASE Category*
Fink, U. W. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Murphy, R. F.

NSG 7101 **University of Arizona** **1177**
Study structure of astrophysical plasma and turbulent fluctuations
Period *Obligations*
11/18/74-08/31/81 FY80: \$110,000 TOTAL: \$333,192
Prin Invest *NASA Tech Officer* *CASE Category*
Jokipii, J. R. HD-SC/Gilman, D. A. 11-Astronomy
HD-SC/Holt, S. S.

NSG 7114 **University of Arizona** **1178**
Infrared observations of the planets
Period *Obligations*
02/20/75-05/31/81 FY80: \$31,145 TOTAL: \$126,821
Prin Invest *NASA Tech Officer* *CASE Category*
Rieke, G. H. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Murphy, R. E.

NSG 7146 **University of Arizona** **1179**
Geologic investigation of Mercury from Mariner 10 television data
Period *Obligations*
07/01/75-01/31/81 FY80: \$79,394 TOTAL: \$339,482
Prin Invest *NASA Tech Officer* *CASE Category*
Strom, R. G. HD-SL/Boyce, J. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NSG 7249 **University of Arizona** **1180**
High precision polarimetry of meteorites
Period *Obligations*
07/01/76-02/28/81 FY80: \$31,629 TOTAL: \$148,897
Prin Invest *NASA Tech Officer* *CASE Category*
Zellner, B. H. HD-SL/French, B. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NSG 7333 **University of Arizona** **1181**
Study of isoelectric focusing for proteins and peptide hormones in a microgravity environment
Period *Obligations*
04/01/79-03/31/83 FY80: \$200,000 TOTAL: \$925,000
Prin Invest *NASA Tech Officer* *CASE Category*
Bier, M. HD-ET/Vitale, J. A. 59-Life Sci, NEC

NSG 7368 **University of Arizona** **1182**
A deep near infrared photographic sky survey as a support tool for the infrared astronomical satellite
Period *Obligations*
06/15/77-06/14/81 FY80: \$39,983 TOTAL: \$107,725
Prin Invest *NASA Tech Officer* *CASE Category*
Craine, E. R. HD-SC/Boggess, N. W. 11-Astronomy
HD-SC/Weiler, E. J.

NSG 7374 **University of Arizona** **1183**
Evaluation of a field-ionization neutral mass spectrometer for possible comet fly-by missions in 1980's
Period *Obligations*
08/01/77-12/01/79 FY80: TOTAL: \$35,006
Prin Invest *NASA Tech Officer* *CASE Category*
Hsieh, K. C. HD-SL/Murphy, R. E. 11-Astronomy
HD-SL/Brunk, W. E.

NSG 7419 **University of Arizona** **1184**
Generation and behavior of solar system magnetic fields
Period *Obligations*
03/01/79-01/31/81 FY80 \$37,852 TOTAL: \$103,990
Prin Invest *NASA Tech Officer* *CASE Category*
Levy, E. H. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NSG 7436 **University of Arizona** **1185**
Rare earths in inclusions from different classes of carbonaceous chondrites
Period *Obligations*
03/01/78-12/28/81 FY80: \$50,904 TOTAL: \$89,237
Prin Invest *NASA Tech Officer* *CASE Category*
Boynton, W. V. HD-SL/French, B. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NSG 7485 **University of Arizona** **1186**
Stratospheric aeronomy
Period *Obligations*
09/01/78-08/31/80 FY80: TOTAL: \$112,272
Prin Invest *NASA Tech Officer* *CASE Category*
Hunton, D. M. HD-ST/Newton, G. P. 31-Atmos Sci
HD-ST/Tilford, S. G.

NASA'S UNIVERSITY PROGRAM **ARKANSAS (Continued)**

NGL 04-001-007 **University of Arkansas - Fayetteville** **1200**
Application of lasers to instrumentation and measurement techniques

Period	Obligations	
06/15/70-04/30/81	FY80: \$28,092	TOTAL: \$452,473
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mazumder, M. K.	ARC/Ragent, B.	41-Aero Engr
	ARC/Bader, J.	

CALIFORNIA

NAG 1-71 **California Institute of Technology** **1201**
Development of mathematical techniques for assimilation of remote sensing data into atmospheric models

Period	Obligations	
06/01/80-05/31/81	FY80: \$43,026	TOTAL: \$43,026
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Seinfeld, J. H.	LARC/McDougal, D. S.	31 Atmos Sci
Koda, M.		
Omatu, S.		

NAG 2-1 **California Institute of Technology** **1202**
Submillimeter line astronomy on the NASA 91.5 cm airborne telescope

Period	Obligations	
10/01/79-12/31/80	FY80: \$60,051	TOTAL: \$60,051
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Phillips, T. G.	ARC/Haughney, L. C.	11-Astronomy

NAG 3-70 **California Institute of Technology** **1203**
Nonsteady combustion in burners for aircraft gas turbines

Period	Obligations	
06/09/80-06/08/81	FY80: \$50,000	TOTAL: \$50,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Marble, F. E.	LERC/Szaniszlo, A. J.	41-Aero Engr
Zukoski, F. E.		
Kubota, T.		

NAG 5-4 **California Institute of Technology** **1204**
Research on long exposure observations of extragalactic objects

Period	Obligations	
03/01/80-08/31/81	FY80: \$26,200	TOTAL: \$26,200
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sargent, W. L.	GSFC/Boggess, A.	11-Astronomy
Gull, T. R.		
Boksenberg, A.		

NAG 5-47 **California Institute of Technology** **1205**
Observations of emission in bright, low redshift quasars

Period	Obligations	
04/28/80-04/27/81	FY80: \$10,000	TOTAL: \$10,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Soifer, B. T.	GSFC/Boggess, A.	11-Astronomy

NAG 5-66 **California Institute of Technology** **1206**
Observations of selected Jovian atmospheric features

Period	Obligations	
05/26/80-12/25/80	FY80: \$9,000	TOTAL: \$9,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Trauger, J. T.	GSFC/Boggess, A.	11-Astronomy
Allen, M. A.		
Lane, A. L.		

NAG 5-68 **California Institute of Technology** **1207**
Research of the stellar population of normal galaxies

Period	Obligations	
06/01/80-05/31/81	FY80: \$9,000	TOTAL: \$9,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cohen, J. G.	GSFC/Boggess, A.	11-Astronomy

NAG 8-304 **California Institute of Technology** **1208**
Investigation of stellar chromospheric and coronal activity

Period	Obligations	
01/28/80-01/27/81	FY80: \$10,000	TOTAL: \$10,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zirin, H.	MSFC/Jones, J. B.	11-Astronomy

NAG 8-313 **California Institute of Technology** **1209**
Investigation of stellar chromospheric and coronal activity

Period	Obligations	
03/01/80-02/28/81	FY80: \$1,728	TOTAL: \$1,728
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zirin, H.	MSFC/Jones, J. B.	11-Astronomy

NAG 8-322 **California Institute of Technology** **1210**
X-ray observations of T Tauri stars

Period	Obligations	
03/20/80-03/19/81	FY80: \$1,512	TOTAL: \$1,512
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Decampli, W. D.	MSFC/Jones, J. B.	11-Astronomy

NAG 8-324 **California Institute of Technology** **1211**
Determine location of high energy astronomical observatory-a2 soft X-ray sources, mapping kilo electron volts diffuse features near galactic Center

Period	Obligations	
01/15/80-01/14/81	FY80: \$15,000	TOTAL: \$15,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Garmire, G. P.	MSFC/Jones, J. B.	11-Astronomy

NAG 8-374 **California Institute of Technology** **1212**
A hot nearby white dwarf, identifying the bright soft X-ray sources found by HEAO-1, HRI observe of the point source in RCW 103, find brightest soft X-ray cataclysmic variables in quiescence

Period	Obligations	
09/15/80-09/14/81	FY80: \$20,000	TOTAL: \$20,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Garmire, G. P.	MSFC/Stone, J. F.	11-Astronomy

NASA'S UNIVERSITY PROGRAM **CALIFORNIA (Continued)**

NAG 8-376 **California Institute of Technology** **1213**
IPC observations of interstellar bullets and IPC observations of
a new type of extragalactic object found at infrared wavelengths
Period *Obligations*
09/22/80-09/21/81 FY80: \$10,210 TOTAL: \$10,210
Prin Invest *NASA Tech Officer* *CASE Category*
Pravdo, S. H. MSFC/Stone, J. F. 11-Astronomy

NAGW 58 **California Institute of Technology** **1214**
Dynamics of planetary atmospheres
Period *Obligations*
05/01/80-04/30/81 FY80: \$85,800 TOTAL: \$85,800
Prin Invest *NASA Tech Officer* *CASE Category*
Ingersoll, A. P. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NAS 5-11066 **California Institute of Technology** **1215**
IMP-H and J electron isotope spectrometer experiment
Period *Obligations*
01/12/68 03/23/80 FY80: TOTAL: \$2,137,391
Prin Invest *NASA Tech Officer* *CASE Category*
Stone, E. C. GSFC/Gemmell, J. D. 13-Physics

NAS 5-20721 **California Institute of Technology** **1216**
High energy cosmic rays experiment for International Sun Earth
Explorer spacecraft
Period *Obligations*
02/07/75-09/30/81 FY80: TOTAL: \$1,706,000
Prin Invest *NASA Tech Officer* *CASE Category*
Stone, E. C. GSFC/Wales, R. O. 13-Physics

NAS 5-22939 **California Institute of Technology** **1217**
Helioscope camera definition study
Period *Obligations*
03/10/76-06/01/80 FY80: TOTAL: \$39,627
Prin Invest *NASA Tech Officer* *CASE Category*
Zirin, H. GSFC/Neupert, W. M. 11-Astronomy
Prout, R. A.

NAS 5-22965 **California Institute of Technology** **1218**
Nimbus G Earth radiation budget sensor support
Period *Obligations*
01/27/76-10/01/80 FY80: TOTAL: \$117,591
Prin Invest *NASA Tech Officer* *CASE Category*
Ingersoll, A. P. GSFC/Nelsen, F. D. 31-Atmos Sci

NAS 5-25049 **California Institute of Technology** **1219**
HEAO A-2 cosmic X-ray experiment mission support and data
analysis support
Period *Obligations*
08/13/78-03/31/82 FY80: \$311,000 TOTAL: \$605,000
Prin Invest *NASA Tech Officer* *CASE Category*
Garmire, G. P. GSFC/Wende, C. D. 13-Physics

NAS 5-25451 **California Institute of Technology** **1220**
Wide field/planetary camera for space telescope
Period *Obligations*
01/01/79-02/01/84 FY80: \$922,021 TOTAL: \$1,445,936
Prin Invest *NASA Tech Officer* *CASE Category*
Westphal, J. GSFC/Sours, W. P. 11-Astronomy

NAS 5-25789 **California Institute of Technology** **1221**
Data reduction and analysis of interplanetary monitoring platform
(IMP) electron isotope spectrometer experiment
Period *Obligations*
03/24/80-12/31/80 FY80: \$84,758 TOTAL: \$84,758
Prin Invest *NASA Tech Officer* *CASE Category*
Stone, E. C. GSFC/Corrigan, J. P. 11-Astronomy

NAS 8-27978 **California Institute of Technology** **1222**
Design, development & operation of the 7 heavy nuclei
experiment under the HEAO program
Period *Obligations*
06/23/72-09/30/81 FY80: \$422,132 TOTAL: \$950,192
Prin Invest *NASA Tech Officer* *CASE Category*
Stone, E. C. MSFC/Stone, J. F. 11-Astronomy

NAS 8-29313 **California Institute of Technology** **1223**
Dynamics of unsteady cavitating cascades
Period *Obligations*
09/28/72-10/15/79 FY80: TOTAL: \$470,459
Prin Invest *NASA Tech Officer* *CASE Category*
Acosta, A. J. MSFC/Gross, L. A. 46-Mech Engr
MSFC/Stinson, H. P., Jr.

NAS 8-33108 **California Institute of Technology** **1224**
Research in turbomachine rotor forces
Period *Obligations*
10/23/78-12/21/81 FY80: \$175,000 TOTAL: \$210,152
Prin Invest *NASA Tech Officer* *CASE Category*
Coma, A. J. MSFC/Gross, L. A. 46-Mech Engr
Brennen, C. MSFC/Goetz, O. K.

NAS 8-33215 **California Institute of Technology** **1225**
ATM guest investigator program empirical studies of solar flares
Comparison of X-ray and h-alpha filterations and analysis of
the energy balance of the thermal X-ray plasma
Period *Obligations*
11/17/78-11/16/79 FY80: TOTAL: \$33,000
Prin Invest *NASA Tech Officer* *CASE Category*
Moore, R. L. MSFC/DeLoach, A. C. 13-Physics
MSFC/Snoddy, W. C.

NAS 8-33331 **California Institute of Technology** **1226**
Study of supernova remnant RCW 103 and a search for X-ray
emission from dwarf novae
Period *Obligations*
02/05/79-02/04/81 FY80: TOTAL: \$10,996
Prin Invest *NASA Tech Officer* *CASE Category*
Garmire, G. P. MSFC/Jones, J. B. 11-Astronomy
Tuohy, I. R.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAS 8-33352 California Institute of Technology 1227
A SSS observation of the supernova remnant RCW 103
Period Obligations
05/30/79-05/29/80 FY80: TOTAL: \$2,720
Prin Invest NASA Tech Officer CASE Category
Garmire, G. P. MSFC/Jones, J. B., Jr. 11-Astronomy
Tuohy, J. R.

NCC 2-61 California Institute of Technology 1228
Evolution of the atmosphere of Venus
Period Obligations
01/01/80-12/31/80 FY80: \$11,995 TOTAL: \$11,995
Prin Invest NASA Tech Officer CASE Category
Yung, Y. L. ARC/Pollack, J. B. 31-Atmos Sci

NCC 5-17 California Institute of Technology 1229
Theoretical investigation of the mechanics of strike slip faulting in an unelastic Earth
Period Obligations
06/01/79-05/31/80 FY80: TOTAL: \$2,778
Prin Invest NASA Tech Officer CASE Category
Melosh, H. J. GSFC/Cohen, S. C. 32-Geological Sci

NGL 05-002-003 California Institute of Technology 1230
Basic scientific research on lunar and planetary exploration
Period Obligations
12/01/79-11/30/80 FY80: \$117,577 TOTAL: \$3,310,435
Prin Invest NASA Tech Officer CASE Category
Muhleman, D. O. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Murphy, R. E.

NGL 05-002-034 California Institute of Technology 1231
Research in solar flares and the solar atmosphere
Period Obligations
05/18/65-09/30/80 FY80: \$255,000 TOTAL: \$3,086,353
Prin Invest NASA Tech Officer CASE Category
Zirin, H. HD-ST/Chipman, E. 11-Astronomy

NGL 05-002-069 California Institute of Technology 1232
Theoretical investigation of planetary interiors
Period Obligations
06/12/67-06/30/80 FY80: TOTAL: \$553,729
Prin Invest NASA Tech Officer CASE Category
Anderson, D. L. HD-SL/Quaide, W. L. 32-Geological Sci

NGL 05-002-105 California Institute of Technology 1233
Shock effects in minerals
Period Obligations
08/16/68-03/31/81 FY80: \$89,605 TOTAL: \$1,194,093
Prin Invest NASA Tech Officer CASE Category
Ahrens, T. J. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. E.

NGL 05-002-134 California Institute of Technology 1234
Modern astronomical instrument development
Period Obligations
10/27/69-09/30/81 FY80: \$42,000 TOTAL: \$764,662
Prin Invest NASA Tech Officer CASE Category
Oke, J. B. HD-SC/Roman, N. G. 11-Astronomy
HD-SC/Rosendhal, J. D.

NGL 05-002-140 California Institute of Technology 1235
Research in planetary astronomy
Period Obligations
04/11/69-03/31/81 FY80: \$27,637 TOTAL: \$540,347
Prin Invest NASA Tech Officer CASE Category
Goldreich, P. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Murphy, R. E.

NGL 05-002-188 California Institute of Technology 1236
Lunar sample analysis
Period Obligations
02/03/71-01/31/81 FY80: \$572,061 TOTAL: \$5,533,763
Prin Invest NASA Tech Officer CASE Category
Wasserman, G. J. JSC/Harris, J. W. 12-Chemistry

NGL 05-002-190 California Institute of Technology 1237
Lunar sample analysis
Period Obligations
01/19/71-01/31/81 FY80: \$60,000 TOTAL: \$952,645
Prin Invest NASA Tech Officer CASE Category
Epstein, S. JSC/Harris, J. W. 13-Physics

NGL 05-002-207 California Institute of Technology 1238
Research in infrared and X-ray astronomy
Period Obligations
02/18/71-09/30/81 FY80: \$86,000 TOTAL: \$991,000
Prin Invest NASA Tech Officer CASE Category
Neugebauer, G. HD-SC/Boggess, N. W. 11-Astronomy
HD-SC/Roman, N. G.

NGL 05-002-338 California Institute of Technology 1239
Petrologic and microprobe investigations on isotopically dated lunar samples
Period Obligations
02/01/74-01/31/82 FY80: \$76,492 TOTAL: \$602,422
Prin Invest NASA Tech Officer CASE Category
Albee, A. L. JSC/Harris, J. W. 13-Physics

NGL 05-002-114 California Institute of Technology 1240
Radio interferometry on Mars and Venus
Period Obligations
10/11/68-09/30/80 FY80: \$50,970 TOTAL: \$475,818
Prin Invest NASA Tech Officer CASE Category
Muhleman, D. O. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Murphy, R. E.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NGR 05-002-160 California Institute of Technology 1241
Research in particles and fields

Period	Obligations
10/27/79-10/31/80	FY80: \$559,000 TOTAL: \$3,585,000
<i>Prin Invest</i>	<i>NASA Tech Officer CASE Category</i>
Vogt, R. E.	HD-SC/Kaluzienski, L. J. 11-Astronomy
	HD-SC/Opp, A. G.

NGR 05-002-256 California Institute of Technology 1242
Study and research on experimental tests of gravitation theory

Period	Obligations
02/23/72-12/31/80	FY80: \$25,000 TOTAL: \$213,000
<i>Prin Invest</i>	<i>NASA Tech Officer CASE Category</i>
Thorne, K. S.	HD-SC/Roman, N. G. 11-Astronomy
	HD-SC/Weiler, E. J.

NGR 05-002-281 California Institute of Technology 1243
High angular resolution of H 2 regions and associated galactic sources

Period	Obligations
03/01/73-10/31/80	FY80: TOTAL: \$359,602
<i>Prin Invest</i>	<i>NASA Tech Officer CASE Category</i>
Werner, M. W.	ARC/Haughney, L. C. 11-Astronomy

NGR 05-002-284 California Institute of Technology 1244
High angular resolution cosmic X-ray astronomy observations in the energy band 0.15-2 Ke and XUV observations of early stars from an attitude controlled rocket

Period	Obligations
03/05/73-03/31/81	FY80: \$182,383 TOTAL: \$1,202,615
<i>Prin Invest</i>	<i>NASA Tech Officer CASE Category</i>
Garmire, G. P.	GSFC/Guidotti, J. 11-Astronomy
Nousek, J.	
Pravdo, S.	

NGR 05-002-303 California Institute of Technology 1245
Systematic search program for new Apollo Amor asteroids

Period	Obligations
08/01/73-09/30/80	FY80: \$97,542 TOTAL: \$551,005
<i>Prin Invest</i>	<i>NASA Tech Officer CASE Category</i>
Shoemaker, E. M.	HD-SL/Boyce, J. M. 32-Geological Sci
	HD-SL/Quaide, W. L.

NGR 05-002-333 California Institute of Technology 1246
Lunar sample analysis

Period	Obligations
02/01/74-01/31/81	FY80: \$95,674 TOTAL: \$648,074
<i>Prin Invest</i>	<i>NASA Tech Officer CASE Category</i>
Tombrello, T. A.	JSC/Harris, J. W. 13-Physics

NGT 05-003-790 California Institute of Technology 1247
Summer research program faculty fellowships

Period	Obligations
01/01/79-03/31/81	FY80: \$162,243 TOTAL: \$235,931
<i>Prin Invest</i>	<i>NASA Tech Officer CASE Category</i>
Albee, A. L.	HD-LU/Carter, C. H. 49-Engr, NEC

NSG 1483 California Institute of Technology 1248
Low speed impact damage on composite materials

Period	Obligations
01/15/78-01/14/81	FY80: \$45,055 TOTAL: \$119,941
<i>Prin Invest</i>	<i>NASA Tech Officer CASE Category</i>
Knuss, W. G.	LARC/Starnes, H. H., Jr. 41-Aero Engr
Balcock, C. D.	

NSG 2413 California Institute of Technology 1249
Airborne observations of Paschen alpha emission in Seyfert galaxies

Period	Obligations
10/01/79-03/31/81	FY80: \$33,641 TOTAL: \$33,641
<i>Prin Invest</i>	<i>NASA Tech Officer CASE Category</i>
Soifer, B. T.	ARC/Haughney, L. C. 11-Astronomy
Neugebauer, G.	

NSG 5208 California Institute of Technology 1250
Support of joint infrared and copernicus X-ray observations

Period	Obligations
09/01/77-08/31/79	FY80: TOTAL: \$5,963
<i>Prin Invest</i>	<i>NASA Tech Officer CASE Category</i>
Neugebauer, G.	GSFC/Kupperian, J. E., Jr. 11-Astronomy

NSG 5224 California Institute of Technology 1251
Earthquake research: Premonitory models and the physics of crustal distortion

Period	Obligations
01/16/78-07/15/80	FY80: TOTAL: \$190,340
<i>Prin Invest</i>	<i>NASA Tech Officer CASE Category</i>
Whitcomb, J. H.	GSFC/Allenby, R. J. 32-Geological Sci
Allen, C. R.	
Anderson, D. L.	

NSG 5243 California Institute of Technology 1252
Observations of faint, high latitude blue stars and ultraviolet spectroscopy of peculiar galaxies and quasars

Period	Obligations
03/01/78-01/31/81	FY80: \$21,800 TOTAL: \$58,800
<i>Prin Invest</i>	<i>NASA Tech Officer CASE Category</i>
Greenstein, J. L.	GSFC/Boggess, A. 11-Astronomy

NSG 5244 California Institute of Technology 1253
Ultraviolet observations of quasi-stellar objects

Period	Obligations
03/01/78-06/30/80	FY80: \$10,800 TOTAL: \$32,800
<i>Prin Invest</i>	<i>NASA Tech Officer CASE Category</i>
Schmidt, M.	GSFC/Boggess, A. 11-Astronomy
Green, F. R.	
Estabrook, F. B.	

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NSG 5267 California Institute of Technology 1254
Theoretical investigation of the mechanics of strike slip faulting in the unelastic program

Period	Obligations	
04/01/78-05/31/79	FY80	TOTAL: \$13,307
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Melosh, H. J.	GSFC/Allenby, R. J.	32-Geological Sci
	GSFC/Mead, G. D.	

NSG 5301 California Institute of Technology 1255
Research in atmospheric chemistry and transport

Period	Obligations	
09/15/78-01/14/81	FY80: \$30,000	TOTAL: \$46,739
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Yung, Y. I.	GSFC/Hanse, J. F.	31-Atmos Sci

NSG 5314 California Institute of Technology 1256
Optical observations at the Big Bear Solar Observatory

Period	Obligations	
01/01/79-12/31/80	FY80: \$8,472	TOTAL: \$60,000
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Zirin, H.	GSFC/Donley, J. I.	31-Atmos Sci

NSG 5327 California Institute of Technology 1257
High resolution comparative observations of microwave and hard X-ray sources

Period	Obligations	
02/01/79-01/31/81	FY80: \$59,400	TOTAL: \$72,000
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Zirin, H.	GSFC/Donley, J. I.	31-Atmos Sci

NSG 5369 California Institute of Technology 1258
Research of interstellar lines in the galactic halo

Period	Obligations	
06/01/79-05/31/80	FY80	TOTAL: \$13,600
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Sargent, W. I.	GSFC/Boggess, A.	11-Astronomy
Gull, T. R.		

NSG 5381 California Institute of Technology 1259
Support of research involving International Ultraviolet Experiment (IUE) satellite

Period	Obligations	
07/01/79-12/31/80	FY80: \$8,000	TOTAL: \$15,000
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Greenstein, J. I.	GSFC/Boggess, A.	11-Astronomy

NSG 5384 California Institute of Technology 1260
Ultraviolet observations of young stellar populations

Period	Obligations	
07/01/79-06/30/81	FY80	TOTAL: \$2,916
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Meier, D. I.	GSFC/Boggess, A.	11-Astronomy
Schmidt, M.		

NSG 5385 California Institute of Technology 1261
Study of the hottest White dwarfs from the Palomar-Green

Period	Obligations	
07/01/79-06/30/80	FY80: TOTAL: \$3,100	
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Green, R. F.	GSFC/Boggess, A.	11-Astronomy
Liebert, J.		
Strittmatter, P. A.		

NSG 7129 California Institute of Technology 1262
Relationship of impact cratering to the evolution of the lunar surface

Period	Obligations	
04/01/75-03/30/81	FY80: \$37,543	TOTAL: \$387,660
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Ahrens, T. J.	HD-SI/Quaide, W. I.	32-Geological Sci
	HD-SI/French, B. M.	

NSG 7202 California Institute of Technology 1263
Laboratory partitioning studies relevant to the interpretation of lunar and meteoritic trace element data

Period	Obligations	
02/01/76-01/31/81	FY80: \$69,125	TOTAL: \$355,718
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Burnett, D. S.	HD-SI/Quaide, W. I.	32-Geological Sci
	HD-SI/French, B. M.	

NSG 7316 California Institute of Technology 1264
Crater modification by gravity

Period	Obligations	
02/01/77-06/30/80	FY80	TOTAL: \$112,360
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Melosh, H. J.	HD-SI/Quaide, W. I.	32-Geological Sci

NSG 7342 California Institute of Technology 1265
Theoretical studies of solar oscillation

Period	Obligations	
04/01/77-09/30/80	FY80	TOTAL: \$39,992
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Goldreich, P.	HD-SI/Bohlin, J. D.	13-Physics

NSG 7376 California Institute of Technology 1266
Photochemistry of the Jovian planets and their satellites

Period	Obligations	
11/01/77-10/31/80	FY80: \$43,525	TOTAL: \$107,172
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Yung, Y. I.	HD-SI/Murphy, R. F.	31-Atmos Sci
	HD-SI/Brunk, W. E.	

NSG 7442 California Institute of Technology 1267
Spectral characterization of analogs to the Martian regolith

Period	Obligations	
10/01/77-03/31/80	FY80	TOTAL: \$54,236
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Albee, A. I.	HD-SI/Boyce, J. M.	32-Geological Sci

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NSG 7458 California Institute of Technology 1268
Space shuttle based compression studies of planetary materials and recovery of very high pressure phases of possible technological usefulness

Period	Obligations	
03/01/78-12/31/79	FY80: TOTAL: \$50,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ahrens, T. J.	HD-RP/Henry, W.	13-Physics
Gault, D. E.		
Ross, M.		

NSG 7495 California Institute of Technology 1269
Detection of gravitational radiation by the Doppler tracking of spacecraft

Period	Obligations	
10/01/78-09/30/80	FY80: \$24,000 TOTAL: \$33,800	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mashhoon, B.	HD-SC/Roman, N. G.	11-Astronomy
	HD-SC/Rosendhal, J. D.	

NSG 7508 California Institute of Technology 1270
Nonlinear interactions in superfluid dynamics. Nonstationary heat transfer due to second sound shock waves

Period	Obligations	
11/01/78-10/31/80	FY80: \$65,463 TOTAL: \$123,609	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liepmann, H. W.	ARC/Chapman, G. I.	13-Physics

NSG 7565 California Institute of Technology 1271
Analysis of Viking infrared thermal mapping data of Mars orbiter and comet missions

Period	Obligations	
10/11/78-09/30/79	FY80: TOTAL: \$2,500	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Muhleman, D. O.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/Dworknik, S. F.	

NSG 7610 California Institute of Technology 1272
Fundamental studies in geodynamics

Period	Obligations	
08/01/79-07/31/83	FY80: \$120,000 TOTAL: \$285,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, D. L.	HD-ET/Vitale, J. A.	32-Geological Sci

NSG 7635 California Institute of Technology 1273
Thermal behavior of Martian satellites Phobos and Deimos

Period	Obligations	
06/01/79-06/30/81	FY80: \$29,961 TOTAL: \$47,961	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Neugebauer, M. G.	HD-SL/Quaide, W. L.	11-Astronomy

NSG 9019 California Institute of Technology 1274
Shock compression measurements on lunar samples

Period	Obligations	
10/01/74-01/31/81	FY80: \$60,000 TOTAL: \$395,100	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ahrens, T. J.	JSC/Harris, J. W.	19-Phys Sci, NEC

NAG 2-61 California Polytechnic State Univ. 1275
Experimental investigation of control concepts for buoyant hybrid airships using a small scale flying model

Period	Obligations	
08/29/80-08/28/81	FY80: \$25,018 TOTAL: \$25,018	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sandlin, D. R.	ARC/Talbot, P. D.	41-Aero Engr
	ARC/Faye, A. E.	

NAG 4-4 California Polytechnic State Univ. 1276
The feasibility of thru: measurement during flight

Period	Obligations	
06/01/80-05/31/81	FY80: \$18,898 TOTAL: \$18,898	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carpenter, T. W.	DFRC/Myers, L. P.	41-Aero Engr
	DFRC/Washington, H. P.	

NAS 2-10364 California Polytechnic State Univ. 1277
Software development and application for dynamic analysis of the tilt rotor research aircraft

Period	Obligations	
09/04/79-09/03/80	FY80: \$47,000 TOTAL: \$113,948	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Grimes, J. E.	ARC/Magee, J. P.	41-Aero Engr

NCA 2-678001 California Polytechnic State Univ. 1278
Vegetation mapping and inventory of forest resources for Santa Cruz count using LANDSAT imagery

Period	Obligations	
01/01/80-12/31/80	FY80: \$27,675 TOTAL: \$27,675	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pillsbury, N.	ARC/Peterson, D. L.	39-Env Sci, NEC

NCC 4-1 California Polytechnic State Univ. 1279
Cal Poly graduate student program:

Period	Obligations	
10/01/79-09/30/81	FY80: \$97,566 TOTAL: \$97,566	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sandlin, D. R.	DFRC/Kordes, E. E.	41-Aero Engr

NSG 2391 California Polytechnic State Univ. 1280
Delay of separation with free stream turbulence

Period	Obligations	
08/01/79-07/31/81	FY80: \$25,927 TOTAL: \$49,860	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hoffmann, J. A.	ARC/Koenig, D. G.	41-Aero Engr
	ARC/Aoyagi, K.	

NSG 4014 California Polytechnic State Univ. 1281
Wake vortex turbulence study using radio controlled models

Period	Obligations	
09/23/77-05/21/80	FY80: TOTAL: \$49,995	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sandlin, D. R.	DFRC/Ayers, T. G.	41-Aero Engr
Nicolaides, J. D.	DFRC/Friend, E. L.	

NASA'S UNIVERSITY PROGRAM **CALIFORNIA (Continued)**

NSG 4020 **California Polytechnic State Univ.** **1282**
Wind tunnel test of free wing/free trimmer concept
Period *Obligations*
12/29/78-12/31/80 **FY80:** **TOTAL: \$11,993**
Prin Invest *NASA Tech Officer* *CASE Category*
Sandlin, D. K. DFRC/Gee, S. W. 41-Aero Engr
Nicolaides, J. D. DFRC/Kordes, E. F.

NSG 4022 **California Polytechnic State Univ.** **1283**
Flight evaluation of terminal guidance system
Period *Obligations*
03/01/79-10/31/80 **FY80:** **TOTAL: \$56,350**
Prin Invest *NASA Tech Officer* *CASE Category*
Sandlin, D. R. DFRC/Gee, S. W. 41-Aero Engr
Nicolaides, J. D. DFRC/Kordes, E. F.

NAG 2-49 **California State Poly Univ - Pomona** **1284**
Development of a small-scale V-STOL propulsion simulator for modelling ground effect fields
Period *Obligations*
08/01/80-04/30/81 **FY80: \$13,872** **TOTAL: \$13,872**
Prin Invest *NASA Tech Officer* *CASE Category*
Lord, P. A. ARC/Christianson, R. S. 41-Aero Engr

NAS 3-22172 **California State University - Chico** **1285**
Operation of the LERC Visitor Information Center
Period *Obligations*
10/01/79-09/30/81 **FY80: \$230,104** **TOTAL: \$230,104**
Prin Invest *NASA Tech Officer* *CASE Category*
Lewis, M. R. LERC/Allen, H. 99-Multi-Discip

NASW 2835 **California State University - Chico** **1286**
Spacemobile operation and maintenance space science education project
Period *Obligations*
07/01/75-02/29/80 **FY80:** **TOTAL: \$4,885,037**
Prin Invest *NASA Tech Officer* *CASE Category*
Unavailable HD-LF/Rich, W. B. 99-Multi-Discip

NAS 9-16207 **California State University - Fullerton** **1287**
Investigation and technical plan for ionospheric models
Period *Obligations*
09/02/80-01/31/81 **FY80: \$5,230** **TOTAL: \$5,230**
Prin Invest *NASA Tech Officer* *CASE Category*
Marouf, A. JSC/Arndt, G. D. 45-Elec Engr

NCA 2-253801 **California State University - Fullerton** **1288**
Real-time simulation of computer-assisted sequencing and scheduling of terminal area operations
Period *Obligations*
07/01/78-01/31/81 **FY80: \$11,701** **TOTAL: \$35,076**
Prin Invest *NASA Tech Officer* *CASE Category*
Dear, R. G. ARC/Tobias, L. 22-Computer Science
ARC/Erzberger, H.

NCA 2-253901 **California State University - Fullerton** **1289**
Absorption by SO2 in the near UV and visible spectral regions with applications to Venus' atmosphere
Period *Obligations*
06/15/79-12/01/80 **FY80: \$5,424** **TOTAL: \$13,514**
Prin Invest *NASA Tech Officer* *CASE Category*
Nanes, R. ARC/Boese, R. W. 13-Physics

NSG 7314 **California State University - Fullerton** **1290**
Meteoritic bismuth and lead-208 micro distributions
Period *Obligations*
02/01/77-01/31/81 **FY80: \$41,901** **TOTAL: \$136,490**
Prin Invest *NASA Tech Officer* *CASE Category*
Woolum, D. S. HD-SL/French, B. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NSG 7614 **California State University - Fullerton** **1291**
Atmospheric dynamics from Viking Lander data
Period *Obligations*
08/01/79-02/28/81 **FY80: \$27,000** **TOTAL: \$46,414**
Prin Invest *NASA Tech Officer* *CASE Category*
Ryan, J. A. HD-SL/Murphy, R. F. 31-Atmos Sci
HD-SL/Brunk, W. F.

NCA 2-290001 **California State Univ - Hayward** **1292**
Acceleration versus orthostatic tolerance after exercise training in men and women
Period *Obligations*
03/01/80-02/28/81 **FY80: \$27,429** **TOTAL: \$27,429**
Prin Invest *NASA Tech Officer* *CASE Category*
Brock, P. J. ARC/Greenleaf, J. F. 59-Life Sci, NEC

NCA 2-290101 **California State Univ - Hayward** **1293**
Sociological survey in relation to project on Advanced Technology Display House (ATDH)
Period *Obligations*
11/01/80-04/30/81 **FY80: \$25,200** **TOTAL: \$25,200**
Prin Invest *NASA Tech Officer* *CASE Category*
Huttman, E. ARC/Holley, H. 76-Sociology

NAG 3-20 **California State University - Long Beach** **1294**
Gear lubrication and cooling study
Period *Obligations*
01/01/80-03/30/81 **FY80: \$54,981** **TOTAL: \$54,981**
Prin Invest *NASA Tech Officer* *CASE Category*
Akin, L. LERC/Townsend, D. P. 46-Mech Engr
LERC/Zaretsky, F. V.

NCA 2-382001 **California State University - Long Beach** **1295**
Experimental investigation of velocity biasing in laser Doppler anemometer measurements
Period *Obligations*
03/17/80-03/16/81 **FY80: \$15,322** **TOTAL: \$15,322**
Prin Invest *NASA Tech Officer* *CASE Category*
Modarress, D. ARC/Johnson, D. A. 46-Mech Engr

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NAG 3-73 California State University - Los Angeles 1296
Electrostatic fuel conditioning of internal combustion engines
Period Obligations
06/15/80-06/14/81 FY80: \$35,000 TOTAL: \$35,000
Pnn Invest NASA Tech Officer CASE Category
Gold, P. I. LERC/Ream, L. W. 46-Mech Engr
Kovacs, A. J.

NASW 3257 California State University - Los Angeles 1297
Development of a direct contact heat exchanger for application in power generation systems utilizing geothermal brines
Period Obligations
03/12/79-12/20/80 FY80: TOTAL: \$33,285
Pnn Invest NASA Tech Officer CASE Category
Manvi, R. HD-LU/Pohly, J. G. 46-Mech Engr
JPL/Nakamura, Y.

NSG 2199 California State University - Los Angeles 1298
Biochemical and structural studies on the thermal resistance of 'hardy' bacterial spores
Period Obligations
01/01/77-10/31/80 FY80: TOTAL: \$65,000
Pnn Invest NASA Tech Officer CASE Category
Andreoli, A. J. ARC/Hochstein, I. I. 51-Biological Sci

NSG 7263 California State University - Los Angeles 1299
Differential scanning calorimetry of coal
Period Obligations
11/15/76-03/15/80 FY80: TOTAL: \$52,900
Pnn Invest NASA Tech Officer CASE Category
Gold, P. I. HD-LU/Pohly, J. G. 46-Mech Engr
JPL/England, C.

NAGW 27 California State University - Northridge 1300
Renewed synoptic observations and research on basic properties of the solar cycle
Period Obligations
02/01/80-01/31/81 FY80: \$44,927 TOTAL: \$44,927
Pnn Invest NASA Tech Officer CASE Category
Martin, S. F. HD-ST/Chipman, F. 13-Physics

NSG 3065 California State University - Northridge 1301
Study of rolling element dynamic interactions with separators and raceway paths
Period Obligations
05/15/75-10/14/79 FY80: TOTAL: \$119,980
Pnn Invest NASA Tech Officer CASE Category
Nypan, L. J. LERC/Coe, H. H. 46-Mech Engr

NSG 5324 California State University - Northridge 1302
Analysis of solar maximum mission spectral information
Period Obligations
01/15/79-02/14/81 FY80: \$41,237 TOTAL: \$100,500
Pnn Invest NASA Tech Officer CASE Category
Martin, S. F. GSFC/Donley, J. L. 31-Atmos Sci

NSG 5330 California State University - Northridge 1303
Research of active regions on the solar constant
Period Obligations
02/01/79-12/31/81 FY80: \$7,371 TOTAL: \$18,494
Pnn Invest NASA Tech Officer CASE Category
Chapman, G. A. GSFC/Donley, J. L. 31-Atmos Sci

NSG 5333 California State University - Northridge 1304
Broad spectrum of magnetic, velocity and spectral data
Period Obligations
02/01/79-02/28/81 FY80: \$40,441 TOTAL: \$66,523
Pnn Invest NASA Tech Officer CASE Category
Chapman, G. A. GSFC/Donley, J. L. 31-Atmos Sci

NSG 7456 California State University - Northridge 1305
Magnetic and velocity field of faculae in collaboration with OSO-1
Period Obligations
06/01/78-09/30/79 FY80: TOTAL: \$13,153
Pnn Invest NASA Tech Officer CASE Category
Chapman, G. HD-ST/Bohlin, J. D. 13-Physics

NCC 2-31 De Anza College 1306
Optimization of an interactive distributive computer network for planetary and infrared scientific research applications
Period Obligations
10/01/79-09/30/81 FY80: \$65,755 TOTAL: \$65,755
Pnn Invest NASA Tech Officer CASE Category
Frederick, V. ARC/Lum, H. 49-Engr, NEC
Lum, H.
Bar-gadda, B.

NCA 2-283801 Harvey Mudd College 1307
Solutions to operational problems encountered in the application of laser diagnostic systems to helicopter rotors
Period Obligations
05/30/78-08/31/80 FY80: \$5,000 TOTAL: \$49,000
Pnn Invest NASA Tech Officer CASE Category
Williams, H. ARC/Luebs, A. B. 41-Aero Engr
ARC/Orloff, K. L.

NCC 2-90 Harvey Mudd College 1308
Helicopter automatic pilot performance in adverse wind conditions
Period Obligations
09/01/80-02/28/81 FY80: \$17,010 TOTAL: \$17,010
Pnn Invest NASA Tech Officer CASE Category
Clary, G. R. ARC/Bull, J. G. 41-Aero Engr

NCA 2-280001 Hastings College of Law 1309
A joint venture between the NASA-ARC and the Hastings College of Law to encourage and support basic, exploratory and applied legal research of mutual benefit to the parties
Period Obligations
09/25/80-09/25/81 FY80: \$70,000 TOTAL: \$70,000
Pnn Invest NASA Tech Officer CASE Category
Henke, D. F. ARC/Glazer, J. H. 99-Multi-Discip
ARC/Brekke, D. G.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCA 2-280001 Hastings College of Law 1310
A joint venture to consolidate law library collections and produce for mutual use and benefit administrative law practice manuals

Period	Obligations	
09/25/78-09/25/80	FY80: \$44,505	TOTAL: \$171,205
Prin Invest	NASA Tech Officer	CASE Category
Wolcott, T.	ARC/Glazer, J. H.	99-Multi-Discip

NSG 2341 Humboldt State University 1311
Application of remote sensing technology in northern California

Period	Obligations	
10/01/78-10/30/80	FY80: \$31,000	TOTAL: \$106,213
Prin Invest	NASA Tech Officer	CASE Category
Fox, I.	ARC/Norman, S. M.	39-Env Sci, NEC

NSG 7566 Pomona College 1312
Viking inorganic chemical analysis experiment: Data analysis and laboratory simulations

Period	Obligations	
03/01/79-09/01/81	FY80: \$95,974	TOTAL: \$171,726
Prin Invest	NASA Tech Officer	CASE Category
Baird, A. K.	HD-SI/Quaide, W. L.	32-Geological Sci
	HD-SI/Boyce, J. M.	

NAG R-356 San Diego State University 1313
Proposal to observe with the High Energy Astronomical Observatory-B

Period	Obligations	
06/27/80-06/26/81	FY80: \$7,499	TOTAL: \$7,499
Prin Invest	NASA Tech Officer	CASE Category
Young, A.	MSFC/Swearingen, J. C.	11-Astronomy
Vanburen, D.		

NAS 9-16143 San Diego State University 1314
Research surface trends to Earth's crust

Period	Obligations	
06-02/80-06/01/81	FY80: \$9,700	TOTAL: \$9,700
Prin Invest	NASA Tech Officer	CASE Category
Jiracek, G. R.	JSC/Blanchard, D. P.	32-Geological Sci

NSG 1430 San Diego State University 1315
Use of the Chappuis band for determination of modern and historical stratospheric ozone levels

Period	Obligations	
07/15/77-10/31/81	FY80: \$34,000	TOTAL: \$101,715
Prin Invest	NASA Tech Officer	CASE Category
Angione, R. J.	LARC/Levine, J. S.	31-Atmos Sci
Roosen, R. G.		

NAGW 94 San Francisco State University 1316
Ternary coordination complexes of metals with 5 foot nucleotides and amino acids in a clay environment

Period	Obligations	
07/01/80-06/30/81	FY80: \$34,642	TOTAL: \$34,642
Prin Invest	NASA Tech Officer	CASE Category
Orenberg, J. B.	HD-SB/Devincenzi, D. L.	12-Chemistry

NCA 2-660001 San Francisco State University 1317
Joint use of resources for operation of NASA-Ames consortium office

Period	Obligations	
10/01/79-09/30/80	FY80: \$86,484	TOTAL: \$86,484
Prin Invest	NASA Tech Officer	CASE Category
Eisenberg, L.	ARC/Tomberlin, K. A.	99-Multi-Discip
Heidtmann, R. W.		

NCA 2-660006 San Francisco State University 1318
Theoretical studies of solar wind dynamics

Period	Obligations	
09/01/78-08/31/80	FY80: \$18,400	TOTAL: \$44,220
Prin Invest	NASA Tech Officer	CASE Category
Kilpatrick, T.	ARC/Barnes, A.	13-Physics
Nerney, S. F.		

NCC 2-25 San Francisco State University 1319
Effects of centrifugation on gonadal and adrenocortical steroid in rats

Period	Obligations	
11/01/79-10/31/80	FY80: \$20,000	TOTAL: \$20,000
Prin Invest	NASA Tech Officer	CASE Category
Kakihana, R.	ARC/Oyama, J.	51-Biological Sci
Butte, J.		

NCC 2-32 San Francisco State University 1320
Studies in origin of life research search for extra-terrestrial intelligence

Period	Obligations	
11/01/79-12/31/80	FY80: \$160,773	TOTAL: \$160,773
Prin Invest	NASA Tech Officer	CASE Category
Seeger, C. L.	ARC/Billingham, J.	59-Life Sci, NEC
	ARC/Wolfe, J. H.	

NCC 2-95 San Francisco State University 1321
Three dimensional solar wind modeling

Period	Obligations	
07/01/80-08/31/81	FY80: \$8,311	TOTAL: \$8,313
Prin Invest	NASA Tech Officer	CASE Category
Nerney, S. F.	ARC/Barnes, A.	11-Astronomy

NSG 7512 San Francisco State University 1322
Smectite clays in Mars soil Evidence for their presence and role in Viking biology experiments

Period	Obligations	
10/01/78-12/31/80	FY80: \$38,130	TOTAL: \$72,362
Prin Invest	NASA Tech Officer	CASE Category
Orenberg, J. B.	HD-SB/Devincenzi, D. L.	51-Biological Sci

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NCA 2-675001 San Jose State University 1323
Computer circled optimization in selection of optimal design parameters of helicopter rotors

Period	Obligations	
10/01/79-09/30/80	FY80: \$20,943	TOTAL: \$20,943
Prin Invest	NASA Tech Officer	CASE Category
Lineicki, A. G.	ARC/Stroub, R. H.	41-Aero Engr
	ARC/Lemke, L. G.	

NCA 2-675002 San Jose State University 1324
A self-report method for motion sickness assessment in the squirrel monkey: Its use in habituation and sensory conflict studies

Period	Obligations	
01/01/80-12/31/81	FY80: \$34,277	TOTAL: \$34,277
Prin Invest	NASA Tech Officer	CASE Category
Ginsberg, R.	ARC/Daunton, N. G.	51-Biological Sci

NCA 2-675003 San Jose State University 1325
Early evolution of the cyanophyta

Period	Obligations	
01/21/80-01/20/82	FY80: \$16,312	TOTAL: \$16,312
Prin Invest	NASA Tech Officer	CASE Category
Weaver, E. C.	ARC/Klein, H. P.	54-Env Biology

NCA 2-675004 San Jose State University 1326
Investigation of mitochondria as a means to determine the effects of space weightlessness on the aging process of drosophila

Period	Obligations	
04/01/80-03/31/81	FY80: \$21,253	TOTAL: \$21,253
Prin Invest	NASA Tech Officer	CASE Category
Yengoyan, L. S.	ARC/Miquel, J.	12-Chemistry

NCA 2-675005 San Jose State University 1327
Effects of circadian rhythm phase alterations on physiological and psychological variables: Implications to pilot performance

Period	Obligations	
06/01/80-10/15/80	FY80: \$18,148	TOTAL: \$18,148
Prin Invest	NASA Tech Officer	CASE Category
Holley, D. C.	ARC/Winget, C. M.	61-Biol Aspects
	ARC/Deroshia, C. W.	

NCA 2-675007 San Jose State University 1328
Stratospheric-mesospheric models

Period	Obligations	
06/02/80-03/31/81	FY80: \$20,044	TOTAL: \$20,044
Prin Invest	NASA Tech Officer	CASE Category
Riegel, C. A.	ARC/Whitten, R. C.	31-Atmos Sci
	ARC/Page, W. A.	

NCA 2-675008 San Jose State University 1329
Abiotic synthesis: Studies of potential primeval atmospheres and the development of biologically significant molecules

Period	Obligations	
07/01/80-06/30/81	FY80: \$20,000	TOTAL: \$20,000
Prin Invest	NASA Tech Officer	CASE Category
Ling, A. C.	ARC/Oyama, V. I.	51-Biological Sci
Mayer, L. A.		
Selter, G.		

NCA 2-675009 San Jose State University 1330
Measures of vestibular function and emesis in animal candidates for flight experimentation

Period	Obligations	
07/01/80-06/30/82	FY80: \$14,728	TOTAL: \$14,728
Prin Invest	NASA Tech Officer	CASE Category
Fox, R. A.	ARC/Daunton, N. G.	61-Biol Aspects

NCA 2-675011 San Jose State University 1331
Joint development of a display software system for unsteady transonic flow field computations

Period	Obligations	
10/01/78-09/30/80	FY80: \$7,391	TOTAL: \$14,391
Prin Invest	NASA Tech Officer	CASE Category
Mitchem, J	ARC/Chyu, W. J.	22-Computer Science
Teall, M.		

NCA 2-675003 San Jose State University 1332
Quantitation of readaptation of selected physiological variables following environmental perturbation

Period	Obligations	
01/01/79-12/31/80	FY80: \$19,774	TOTAL: \$39,269
Prin Invest	NASA Tech Officer	CASE Category
Holley, D. C.	ARC/Winget, C. M.	51-Biological Sci

NCA 2-675007 San Jose State University 1333
Population dynamics in small scale microbial ecosystems

Period	Obligations	
07/01/79-06/30/81	FY80: \$9,999	TOTAL: \$17,994
Prin Invest	NASA Tech Officer	CASE Category
Haight, R. D.	ARC/Deal, P. H.	51-Biological Sci

NCC 2-2 San Jose State University 1334
A study of planetary meteorology

Period	Obligations	
04/01/79-09/30/80	FY80: \$4,844	TOTAL: \$13,042
Prin Invest	NASA Tech Officer	CASE Category
Riegel, C. A.	ARC/Pollack, J. B.	31-Atmos Sci

NCC 2-3 San Jose State University 1335
A study of fiber materials for use in temperature resistant fiber reinforced composites

Period	Obligations	
05/31/79-05/31/81	FY80: \$66,870	TOTAL: \$107,224
Prin Invest	NASA Tech Officer	CASE Category
Anderson, R. N.	ARC/Riccitiello, S.R.	47-Materials Engr
	ARC/Goldstein, H.	

NCC 2-4 San Jose State University 1336
An investigation of the toxic hazards from burning materials in controlled fires

Period	Obligations	
04/01/79-03/31/81	FY80: \$46,683	TOTAL: \$80,698
Prin Invest	NASA Tech Officer	CASE Category
Ballard, R. C.	ARC/Cagliostro, D. E.	12-Chemistry

**NASA'S UNIVERSITY PROGRAM
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NCC 2-8 **San Jose State University** **1337**
Development of superoxides as an improved oxygen source for breathing apparatus

Period	Obligations	
06/20/79-06/19/81	FY80: \$55,954	TOTAL: \$100,966
Prin Invest	NASA Tech Officer	CASE Category
Spitze, L. A.	ARC/Wydeven, T.	12-Chemistry
Ballou, E. V.		
Wood, P.		

NCC 2-28 **San Jose State University** **1338**
Characterization and degradation studies on aromatic polyimides, polyesters and composite resins

Period	Obligations	
10/01/79-10/31/80	FY80: \$67,900	TOTAL: \$67,900
Prin Invest	NASA Tech Officer	CASE Category
Ling, A. C.	ARC/Heimbuch, A. H.	12-Chemistry
Hsu, M. T.		

NCC 2-34 **San Jose State University** **1339**
Cooperative research on flight management

Period	Obligations	
10/01/79-10/31/81	FY80: \$116,687	TOTAL: \$116,687
Prin Invest	NASA Tech Officer	CASE Category
Clark, B.	ARC/Wempe, T. E.	59-Life Sci, NEC

NCC 2-35 **San Jose State University** **1340**
Simulation technology: Human performance in inflight simulation abstract

Period	Obligations	
10/01/79-10/31/80	FY80: \$102,330	TOTAL: \$102,330
Prin Invest	NASA Tech Officer	CASE Category
Clark, B.	ARC/Stewart, J. D.	69-Psych, NEC

NCC 2-37 **San Jose State University** **1341**
Helicopter human factors

Period	Obligations	
10/01/79-10/31/80	FY80: \$56,478	TOTAL: \$56,478
Prin Invest	NASA Tech Officer	CASE Category
Clark, B.	ARC/Hartzell, E. J.	69-Psych, NEC
	ARC/Huff, E. M.	

NCC 2-53 **San Jose State University** **1342**
Mineral separation systems

Period	Obligations	
01/01/80-10/31/80	FY80: \$28,856	TOTAL: \$28,856
Prin Invest	NASA Tech Officer	CASE Category
Spitze, L. A.	ARC/Wydeven, T.	12-Chemistry

NCC 2-56 **San Jose State University** **1343**
Heat release studies for aircraft materials

Period	Obligations	
01/01/80-12/31/80	FY80: \$53,998	TOTAL: \$53,998
Prin Invest	NASA Tech Officer	CASE Category
Ling, A. C.	ARC/Kourides, D. A.	12-Chemistry
	ARC/Gilwee, W. J.	

NCC 2-57 **San Jose State University** **1344**
New elastomers for improved aircraft tires

Period	Obligations	
01/01/80-12/31/80	FY80: \$31,658	TOTAL: \$31,658
Prin Invest	NASA Tech Officer	CASE Category
Ling, A. C.	ARC/Golub, M. A.	12-Chemistry
	ARC/Parker, J. A.	

NCC 2-65 **San Jose State University** **1345**
A study of processing parameters for nonmetallic composites

Period	Obligations	
03/01/80-09/30/80	FY80: \$17,560	TOTAL: \$17,560
Prin Invest	NASA Tech Officer	CASE Category
Ling, A. C.	ARC/Fohlen, G. M.	12-Chemistry
Holloway, J. G.	ARC/Heimbuch, A. H.	

NCC 2-68 **San Jose State University** **1346**
One and two dimensional atmospheric computer model and studies

Period	Obligations	
04/01/80-03/31/81	FY80: \$47,435	TOTAL: \$47,435
Prin Invest	NASA Tech Officer	CASE Category
Riegel, C. A.	ARC/Whitten, R. C.	31-Atmos Sci
	ARC/Toon, O. B.	

NCC 2-72 **San Jose State University** **1347**
Changes in cortisol and antidiuretic hormone during induced motion sickness in squirrel monkeys

Period	Obligations	
04/15/80-12/14/80	FY80: \$10,000	TOTAL: \$10,000
Prin Invest	NASA Tech Officer	CASE Category
Fox, R. A.	ARC/Suri, K. P.	51-Biological Sci

NCC 2-73 **San Jose State University** **1348**
A method for evaluating the transports by mean deviatory motions in a two dimensional model

Period	Obligations	
05/01/80-05/31/81	FY80: \$54,597	TOTAL: \$54,597
Prin Invest	NASA Tech Officer	CASE Category
Riegel, C. A.	ARC/Danielsen, E. F.	31-Atmos Sci

NCC 2-80 **San Jose State University** **1349**
A study of the physical properties of composites

Period	Obligations	
05/01/80-04/30/81	FY80: \$29,998	TOTAL: \$29,998
Prin Invest	NASA Tech Officer	CASE Category
Holmstrom, F.	ARC/Mansfield, J.	47-Materials Engr

NCC 2-81 **San Jose State University** **1350**
Synthesis, characterization, and formulation of perfluorocarbon ether elastomers

Period	Obligations	
10/01/80-05/31/81	FY80: \$62,714	TOTAL: \$62,714
Prin Invest	NASA Tech Officer	CASE Category
Selter, G.	ARC/Rosser, R. W.	12-Chemistry
Chen, T.	ARC/Parker, J. A.	
Cheng, C.		

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CALIFORNIA (Continued)**

NCC 2-83 **San Jose State University** **1351**
Determination, state estimation and parameter identification
Period *Obligations*
06/01/80-05/31/81 **FY80: \$84,125** **TOTAL: \$84,125**
Prin Invest *NASA Tech Officer* *CASE Category*
Wang, J. C. ARC/Duval, R. W. 21-Mathematics

NSG 2186 **San Jose State University** **1352**
Characterization and formulation of fluorocarbon ether elastomers
Period *Obligations*
10/01/76-09/30/80 **FY80:** **TOTAL: \$238,023**
Prin Invest *NASA Tech Officer* *CASE Category*
Hyer, M. W. ARC/Rosser, R. W. 12-Chemistry
Korus, R. A. ARC/Parker, J. A.

NSG 2239 **San Jose State University** **1353**
Coastal zone color scanner surface truth measurements
Period *Obligations*
06/01/77-09/30/80 **FY80:** **TOTAL: \$59,975**
Prin Invest *NASA Tech Officer* *CASE Category*
Broenkow, W. W. ARC/Wrigley, R. C. 33-Oceanography

NSG 2305 **San Jose State University** **1354**
Applications of X-ray fluorescence spectrometry to water quality assurance programs
Period *Obligations*
02/01/78-09/30/80 **FY80: \$8,496** **TOTAL: \$49,394**
Prin Invest *NASA Tech Officer* *CASE Category*
Ling, A. C. ARC/Nishioka, K. 39-Env Sci, NEC

NSG 2339 **San Jose State University** **1355**
Changes in cortisol and antidiuretic hormone during induced motion sickness in cats
Period *Obligations*
10/01/78-05/31/81 **FY80:** **TOTAL: \$19,598**
Prin Invest *NASA Tech Officer* *CASE Category*
Fox, R. A. ARC/Suri, K. P. 61-Biol Aspects

NSG 2371 **San Jose State University** **1356**
Graphite epoxy composite protective coatings
Period *Obligations*
01/01/79-01/31/81 **FY80: \$27,588** **TOTAL: \$50,134**
Prin Invest *NASA Tech Officer* *CASE Category*
Mayer, L. A. ARC/Fish, R. H. 12-Chemistry

NSG 2398 **San Jose State University** **1357**
Establishment of a sample treatment protocol for virus detection by laser fluorometry
Period *Obligations*
07/01/79-10/31/80 **FY80:** **TOTAL: \$21,653**
Prin Invest *NASA Tech Officer* *CASE Category*
Funk, G. A. ARC/Johnson, R. D. 39-Env Sci, NEC

NAG 1-17 **Stanford University** **1358**
The annoyance of impulsive helicopter noise
Period *Obligations*
12/01/79-11/30/80 **FY80: \$58,700** **TOTAL: \$58,700**
Prin Invest *NASA Tech Officer* *CASE Category*
Karamcheti, K. LARC/Powell, C. A. 69-Psych, NEC
Ahumada, A. LARC/McCurdy, D. A.

NAG 1-97 **Stanford University** **1359**
Basic research in structural dynamics and control of large flexible space structures
Period *Obligations*
08/01/80-09/30/80 **FY80: \$40,000** **TOTAL: \$40,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Cannon, R. H. LARC/Horner, G. C. 42-Astro Engr
Bryson, A. E. LARC/Montgomery, R. C.
Ashley, H.

NAG 2-18 **Stanford University** **1360**
Analysis and development of gust alleviation systems for small transport aircraft
Period *Obligations*
01/01/80-12/31/80 **FY80: \$47,024** **TOTAL: \$47,024**
Prin Invest *NASA Tech Officer* *CASE Category*
Shevell, R. S. ARC/Williams, L. J. 41-Aero Engr
ARC/Galloway, T. L.

NAG 2-21 **Stanford University** **1361**
An experimental investigation of the behavior of sub-grid scale motions in turbulent shear flow
Period *Obligations*
02/01/80-01/31/81 **FY80: \$62,356** **TOTAL: \$62,356**
Prin Invest *NASA Tech Officer* *CASE Category*
Cantrell, B. ARC/Chapman, G. T. 41-Aero Engr
ARC/Tobak, M.

NAG 2-29 **Stanford University** **1362**
Research and training in computational turbulence flow simulation
Period *Obligations*
04/01/80-03/31/81 **FY80: \$85,570** **TOTAL: \$85,570**
Prin Invest *NASA Tech Officer* *CASE Category*
Reynolds, W. C. ARC/Peterson, V. L. 41-Aero Engr
Moin, P. ARC/Lomax, H.
Kim, J. J.

NAG 2-36 **Stanford University** **1363**
Density measurement in air with a saturable absorbing seed gas
Period *Obligations*
07/01/80-06/30/81 **FY80: \$24,938** **TOTAL: \$24,938**
Prin Invest *NASA Tech Officer* *CASE Category*
Baganoff, D. ARC/McKenzie, R. L. 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAG 2-42 **Stanford University** **1364**
The Joint Institute for Aeronautics and Acoustics: Experimental investigation of flow over a single backward facing step

Period	Obligations	
05/01/80-04/30/81	FY80: \$50,000	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kline, S. J.	ARC/Presley, L. L.	41-Aero Engr
Johnston, J. P.	ARC/Johnson, D. J.	

NAG 2-43 **Stanford University** **1365**
Joint Institute for Aeronautics and Acoustics: Analysis of compressible flow in subsonic diffusers

Period	Obligations	
05/01/80-04/30/81	FY80: \$20,000	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Karanicheti, K.	ARC/Presley, L. L.	41-Aero Engr
Kline, S. J.	ARC/Lee, G.	
Ferziger, J. H.		

NAG 2-44 **Stanford University** **1366**
Studies on lasers and laser devices

Period	Obligations	
04/01/80-03/31/81	FY80: \$80,000	TOTAL: \$80,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Harris, S. E.	ARC/McKenzie, R. L.	19-Phys Sci, NEC
Siegman, A. E.		
Young, J. F.		

NAG 2-45 **Stanford University** **1367**
Joint Institute for Aeronautics and Acoustics: Application of holography to the study of helicopter rotor flow fields

Period	Obligations	
07/01/80-06/30/81	FY80: \$22,504	TOTAL: \$22,504
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Baganoff, D.	ARC/Yu, Y. H.	41-Aero Engr
	ARC/Schmitz, F. H.	

NAG 2-62 **Stanford University** **1368**
High accuracy heat capacity measurement through the lambda transition of liquid helium

Period	Obligations	
09/01/80-08/31/81	FY80: \$40,000	TOTAL: \$40,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fairbanks, W. M.	ARC/Brooks, W. F.	13-Physics
Lipa, J. A.	ARC/Cipman, G.	

NAG 3-3 **Stanford University** **1369**
Heat transfer and hydrodynamic studies on a curved surface with full-coverage film coolings

Period	Obligations	
11/01/79-10/31/80	FY80: \$84,310	TOTAL: \$84,310
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Johnston, J. P.	LERC/Gaugler, R. E.	46-Mech Engr
Kays, W. M.		
Moffat, R. J.		

NAG 3-63 **Stanford University** **1370**
Computing low-thrust transfers to synchronous orbit

Period	Obligations	
05/02/80-05/01/81	FY80: \$41,736	TOTAL: \$41,736
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Breakwell, J. V.	LERC/Spurlock, O. F.	42-Astro Engr

NAG 8-325 **Stanford University** **1371**
A study of the size and composition of interstellar grains

Period	Obligations	
03/01/80-02/28/81	FY80: \$15,563	TOTAL: \$15,563
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Walker, A. B.	MSFC/Jones, J. B.	11-Astronomy

NAGW 6 **Stanford University** **1372**
Neuroscientific and biocybernetic models of relevance for the design and development of intelligent machines

Period	Obligations	
07/01/79-10/31/80	FY80: \$74,935	TOTAL: \$74,935
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Suppes, P.	HD-RT/Gevarter, W. B.	99-Multi-Discip
Anliker, J. E.	LARC/Woolley, C.	

NAGW 86 **Stanford University** **1373**
A comparative study of calculated and observed magnetosheath plasma properties

Period	Obligations	
07/01/80-06/30/81	FY80: \$52,900	TOTAL: \$52,900
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Spreiter, J. R.	HD-ST/Wiskerchen, M. J.	12-Chemistry
	HD-ST/Schmerling, E. R.	

NAGW 92 **Stanford University** **1374**
Research in solar plasma theory

Period	Obligations	
07/15/80-07/14/81	FY80: \$152,000	TOTAL: \$152,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sturrock, P. A.	HD-ST/Birmingham, T. J.	13-Physics
	HD-ST/Newton, G. P.	

NAS 2-10512 **Stanford University** **1375**
Insulin resistance in animals exposed to weightlessness in spaceflight: Effect of exercise training

Period	Obligations	
01/17/80-04/30/81	FY80: \$3,011	TOTAL: \$3,011
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Reaven, G. M.	ARC/Ferandin, J.	51-Biological Sci
Mondon, C. E.	ARC/Sebesta, P.	

NAS 5-21960 **Stanford University** **1376**
Gravity only orbit control subsystem

Period	Obligations	
12/21/73-05/30/81	FY80: \$30,000	TOTAL: \$261,262
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Debra, D. B.	GSFC/Kant, S.	42-Astro Engr

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NAS 5-24232 **Stanford University** **1377**
Applications of heat capacity mapping mission satellite data to
the study of urban heating patterns
Period *Obligations*
06/01/77-08/08/81 **FY80: \$16,900 TOTAL: \$111,176**
Prin Invest *NASA Tech Officer* *CASE Category*
Lyon, R. J. GSFC/Broderick, J. 32-Geological Sci

NAS 5-24409 **Stanford University** **1378**
Controlled and naturally occurring wave particle interactions in
the magnetosphere, for dynamic Explorer
Period *Obligations*
09/22/78-05/30/81 **FY80: TOTAL: \$40,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Helliwell, R. A. GSFC/Fellerman, K. D. 13-Physics
Park, C. G. GSFC/Lidston, J. M.

NAS 5-24420 **Stanford University** **1379**
Observation and correlative studies from ISEE-C data from the
Stanford solar telescope
Period *Obligations*
02/17/78-09/30/81 **FY80: \$75,000 TOTAL: \$275,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Wilcox, J. M. GSFC/Wales, R. O. 13-Physics

NAS 5-24479 **Stanford University** **1380**
Soil moisture in relation to geologic structure and lithology
northern California
Period *Obligations*
04/21/78-12/20/80 **FY80: \$2,022 TOTAL: \$20,967**
Prin Invest *NASA Tech Officer* *CASE Category*
Rich, E. I. GSFC/Broderick, J. 32-Geological Sci

NAS 5-25043 **Stanford University** **1381**
Radiographic applications of spatial frequency multiplexing
Period *Obligations*
06/19/78-12/18/80 **FY80: \$10,000 TOTAL: \$70,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Macovski, A. GSFC/Ostrow, H. 19-Phys Sci, NEC

NAS 5-25688 **Stanford University** **1382**
Controlled and naturally occurring wave particle interaction-
investigation on dynamics Explorer, Phase 3
Period *Obligations*
05/01/80-07/31/83 **FY80: \$8,000 TOTAL: \$8,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Helliwell, R. A. GSFC/Hoffman, R. A. 11-Astronomy

NAS 5-25744 **Stanford University** **1383**
International Sun-Earth Explorer data reduction
Period *Obligations*
11/01/79-10/31/80 **FY80: \$123,690 TOTAL: \$123,690**
Prin Invest *NASA Tech Officer* *CASE Category*
Helliwell, R. A. GSFC/Corrigan, J. P. 11-Astronomy

NAS 5-26020 **Stanford University** **1384**
Definition study of the total absorption shower counter
Period *Obligations*
01/07/80-10/07/81 **FY80: \$85,000 TOTAL: \$85,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Hofstadler, R. GSFC/Campbell, C. F. 11-Astronomy

NAS 8-32263 **Stanford University** **1385**
Scientific data reduction and analysis activities ATM/S 056
experiment
Period *Obligations*
10/01/76-10/31/79 **FY80: TOTAL: \$307,500**
Prin Invest *NASA Tech Officer* *CASE Category*
Underwood, J. H. MSFC/Snoddy, W. C. 11-Astronomy

NAS 8-32355 **Stanford University** **1386**
Gyro test of general relativity in a satellite
Period *Obligations*
03/11/77-01/29/81 **FY80: \$580,968 TOTAL: \$1,690,635**
Prin Invest *NASA Tech Officer* *CASE Category*
Everitt, C. W. MSFC/Potter, R. A. 13-Physics
Fairbanks, W. M. MSFC/Decher, R.
Debra, D. B.

NAS 8-32605 **Stanford University** **1387**
Superconducting bearings for application in cryogenic experimen's
in space
Period *Obligations*
08/01/77-06/10/80 **FY80: \$3,629 TOTAL: \$140,530**
Prin Invest *NASA Tech Officer* *CASE Category*
Everitt, C. W. MSFC/Urban, E. W. 13-Physics
MSFC/Decher, R.

NAS 8-32852 **Stanford University** **1388**
Definition study of plasma depletion experiments during Spacelab
mission 2
Period *Obligations*
10/01/77-08/31/82 **FY80: \$10,000 TOTAL: \$57,841**
Prin Invest *NASA Tech Officer* *CASE Category*
DaRosa, A. V. MSFC/Guynes, B. V. 31-Atmos Sci
MSFC/Isc, R.

NAS 8-33012 **Stanford University** **1389**
An investigation of the thermal structure of selected diffuse features
in the soft X-ray/EUV background HEAO-1
Period *Obligations*
05/23/78-05/22/79 **FY80: TOTAL: \$16,904**
Prin Invest *NASA Tech Officer* *CASE Category*
Walker, A. B. MSFC/Dailey, C. C. 11-Astronomy

NAS 8-33110 **Stanford University** **1390**
Direct observation of interface instability during crystal growth
Period *Obligations*
12/01/78-12/31/80 **FY80: \$83,000 TOTAL: \$165,793**
Prin Invest *NASA Tech Officer* *CASE Category*
Tiller, W. A. MSFC/Reeves, F. A. 19-Phys Sci, NEC
Feigelson, R. S. MSFC/Davidson, M. C.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAS 8-33234 **Stanford University** **1391**
Theoretical study hard X-ray emissions from Cygnus X-1 using the HEAO-A observational results
Period *Obligations*
11/20/78-01/27/81 **FY80: \$23,741 TOTAL: \$36,740**
Prin Invest *NASA Tech Officer* *CASE Category*
Wagoner, R. V. MSFC/Manning, H. S. 11-Astronomy

NAS 8-33796 **Stanford University** **1392**
A preliminary study of a cryogenic equivalence principle experiment on shuttle
Period *Obligations*
04/30/80-04/29/81 **FY80: \$24,635 TOTAL: \$24,635**
Prin Invest *NASA Tech Officer* *CASE Category*
Everitt, C. W. MSFC/Decher, R. 31-Atmos Sci
Worden, P. W. MSFC/Peters, P.

NAS 9-16050 **Stanford University** **1393**
Cardiovascular effects of weightlessness studied by two dimensional, real-time ultrasound
Period *Obligations*
01/17/80-05/31/81 **FY80: \$62,994 TOTAL: \$62,994**
Prin Invest *NASA Tech Officer* *CASE Category*
Popp, R. JSC/Kirby, R. 59-Life Sci, NEC

NASW 2916 **Stanford University** **1394**
Advanced studies in computer visual systems for exploratory vehicles
Period *Obligations*
03/01/76-09/30/78 **FY80: TOTAL \$89,514**
Prin Invest *NASA Tech Officer* *CASE Category*
McCarthy, J. HD-RE/Pontious, C. F. 45-Elec Engr

NASW 3204 **Stanford University** **1395**
Program of research and research internships in telecommunications and information technology
Period *Obligations*
07/01/78-09/30/81 **FY80: \$250,000 TOTAL \$500,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Dunn, D. HD-ET/Roberson, F. 39-Env Sci, NEC
Agnew, C. HD-LU/Carter, C. H.

NCA 2-745001 **Stanford University** **1396**
Eigenvector and eigenvalue analysis of finite difference schemes used to solve the Euler equations
Period *Obligations*
10/01/79-09/30/80 **FY80: \$1,445 TOTAL \$8,969**
Prin Invest *NASA Tech Officer* *CASE Category*
Shevell, R. S. ARC/Lomax, H. 41-Aero Engr

NCA 2-745002 **Stanford University** **1397**
Numerical solution of steady Navier-Stokes equations
Period *Obligations*
10/15/79-10/14/80 **FY80: \$14,021 TOTAL \$14,021**
Prin Invest *NASA Tech Officer* *CASE Category*
Schreiber, R. S. ARC/Warming, R. E. 21-Mathematics
ARC/Mehta, U. B.

NCA 2-745004 **Stanford University** **1398**
Stable boundary approximations for difference methods for compressible fluids
Period *Obligations*
04/01/80-03/31/81 **FY80: \$13,538 TOTAL: \$13,538**
Prin Invest *NASA Tech Officer* *CASE Category*
Oliger, J. ARC/Beam, R. M. 22-Computer Science

NCA 2-745005 **Stanford University** **1399**
A study of the use of multigrid techniques on the relaxation of steady transonic flows
Period *Obligations*
06/01/80-05/31/81 **FY80: \$13,526 TOTAL: \$13,526**
Prin Invest *NASA Tech Officer* *CASE Category*
Baganoff, D. ARC/Lomax, H. 41-Aero Engr
Cantwell, B.

NCA 2-745006 **Stanford University** **1400**
Graphic analysis of computed three dimensional viscous flow fields
Period *Obligations*
06/01/80-09/30/80 **FY80: \$4,006 TOTAL: \$4,006**
Prin Invest *NASA Tech Officer* *CASE Category*
Baganoff, D. ARC/Deiwert, G. S. 41-Aero Engr

NCA 2-745008 **Stanford University** **1401**
Cosmological and local effects of the variable cosmological constant
Period *Obligations*
09/15/80-09/14/81 **FY80: \$13,000 TOTAL: \$13,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Petrosian, V. ARC/Caroff, L. J. 13-Physics

NCA 2-745709 **Stanford University** **1402**
Glucocorticoid effects on bone formation in vitro
Period *Obligations*
01/01/77-09/30/80 **FY80: TOTAL: \$28,030**
Prin Invest *NASA Tech Officer* *CASE Category*
Feldman, D. ARC/Holton, E. M. 56-Medical Sciences

NCA 2-745802 **Stanford University** **1403**
Renal receptor and simulated weightlessness
Period *Obligations*
10/01/77-09/30/80 **FY80: TOTAL: \$34,573**
Prin Invest *NASA Tech Officer* *CASE Category*
Feldman, D. ARC/Holton, E. M. 56-Medical Sciences

NCA 2-745901 **Stanford University** **1404**
A study of the epitaxial nucleation and growth characteristics of metals on refractory oxide substrates by in-situ transmission electron microscopy
Period *Obligations*
11/15/78-11/14/80 **FY80: \$18,355 TOTAL: \$29,973**
Prin Invest *NASA Tech Officer* *CASE Category*
Heinemann, K. ARC/Poppa, H. 47-Materials Engr

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NCA 2-745906 **Stanford University** **1405**
Numerical simulation of the turbulent shear layer using the vortex-in-cell method

Period	Obligations	
09/01/79-08/31/81	FY80 \$10,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Buneman, O.	ARC/Leonard, A.	45-Elec Engr
Couet, B.		

NCA 2-745907 **Stanford University** **1406**
Nutrient recycling in a closed, synthetic ecosystem: A model for the study of ecosystem control

Period	Obligations	
07/01/79-07/31/80	FY80	TOTAL: \$14,841
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Young, L. Y.	ARC/Silverman, M. P.	59-Life Sci, NEC

NCA 2-745908 **Stanford University** **1407**
Catalytic oxidation reactions on group 8 metal particles supported on single crystal

Period	Obligations	
06/01/79-05/31/81	FY80 \$8,356	TOTAL: \$16,712
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Boudart, M.	ARC/Poppa, H.	43-Chem Engr

NCA 2-745911 **Stanford University** **1408**
Cardiovascular deconditioning and exercise performance

Period	Obligations	
09/01/79-08/31/81	FY80 \$5,000	TOTAL: \$27,165
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Debusk, R. F.	ARC/Goldwater, D.	51-Biological Sci

NCA 2-1 **Stanford University** **1409**
Development of ultrasonic indices for space shuttle passenger selection

Period	Obligations	
04/01/79-03/31/81	FY80 \$50,000	TOTAL: \$100,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Popp, R.	ARC/Sandler, H.	56-Medical Sciences

NCC 2-10 **Stanford University** **1410**
Aerothermodynamic heat shield environments

Period	Obligations	
09/15/79-09/14/81	FY80 \$21,385	TOTAL: \$81,385
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bershafer, D.	ARC/Howe, J. T.	42-Astro Engr
	ARC/Nachtsheim, P. R.	

NCC 2-13 **Stanford University** **1411**
Experimental studies of rotors

Period	Obligations	
06/01/79-05/31/81	FY80 \$106,428	TOTAL: \$136,515
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Karamcheti, K.	ARC/Robinson, W. R.	41-Aero Engr
Chopra, I.	ARC/Warmbrodt, W. G.	

NCC 2-15 **Stanford University** **1412**
A cooperative program in the computation of turbulent flows

Period	Obligations	
07/01/79-06/30/81	FY80: \$76,080	TOTAL: \$101,080
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Reynolds, W. C.	ARC/Rubesin, M. W.	19-Phys Sci, NEC
Ferziger, J. H.	ARC/Leonard, A.	

NCC 2-18 **Stanford University** **1413**
Studies in rotor aerodynamics and noise

Period	Obligations	
04/01/79-10/31/80	FY80 \$113,547	TOTAL: \$166,353
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Karamcheti, K.	ARC/Presley, R.	41-Aero Engr
Wright, S. F.		

NCC 2-21 **Stanford University** **1414**
Fundamental studies of unsteady turbulent boundary layers

Period	Obligations	
09/01/79-12/31/80	FY80: \$89,783	TOTAL: \$109,783
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Reynolds, W. C.	ARC/Carr, L. W.	41-Aero Engr
Pankh, P.	ARC/McCroskey, W. J.	

NCC 2-29 **Stanford University** **1415**
NASA-Ames/Stanford Joint Institute for Aeronautics and Acoustics. Shuttle infrared telescope pointing control system

Period	Obligations	
10/01/79-10/31/80	FY80: \$60,927	TOTAL: \$60,927
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Powell, J. D.	ARC/Lorell, K. R.	42-Astro Engr

NCC 2-30 **Stanford University** **1416**
High resolution transmission electron microscope studies of small metal crystallites and surfaces

Period	Obligations	
11/01/79-10/31/80	FY80: \$21,366	TOTAL: \$21,366
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Heinemann, K.	ARC/Arnold, J. O.	13-Physics

NCC 2-38 **Stanford University** **1417**
Implantable instrumentation for studies of blood flow distribution

Period	Obligations	
12/01/79-11/30/80	FY80: \$80,000	TOTAL: \$80,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Meindl, J. D.	ARC/Sandler, H.	56-Medical Sciences

NCC 2-42 **Stanford University** **1418**
Flow analysis over an advancing rotor blade

Period	Obligations	
10/01/79-10/31/80	FY80: \$24,068	TOTAL: \$24,068
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Karamcheti, K.	ARC/Tauber, M. E.	41-Aero Engr
Arnel, R.		

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NCC 2-44 **Stanford University** **1419**
Perceptual problems in aeronautics
Period *Obligations*
11/01/79-10/31/80 **FY80: \$85,567** **TOTAL: \$85,567**
Prin Invest *NASA Tech Officer* *CASE Category*
Karamcheti, K. ARC/Tanner, T. A. 69-Psych, NEC

NCC 2-46 **Stanford University** **1420**
An investigation of the performance, application potential, and inherent limitations of the new microanalytical instrument: The auger microprobe
Period *Obligations*
02/01/80-10/31/81 **FY80: \$65,979** **TOTAL: \$65,979**
Prin Invest *NASA Tech Officer* *CASE Category*
Heinemann, K. ARC/Arnold, J. O. 13-Physics

NCC 2-50 **Stanford University** **1421**
Ultra high resolution molecular beam cars spectroscopy with applications to planetary atmospheric molecules
Period *Obligations*
01/01/80-12/31/80 **FY80: \$30,000** **TOTAL: \$30,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Byer, R. L. ARC/Chackerians, C. 13-Physics

NCC 2-51 **Stanford University** **1422**
Cardiovascular magnetic measurements
Period *Obligations*
01/01/80-12/31/80 **FY80: \$75,000** **TOTAL: \$75,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Harrison, D. C. ARC/Sandler, H. 56-Medical Sciences

NCC 2-52 **Stanford University** **1423**
Biomedical technology transfer
Period *Obligations*
01/01/80-12/31/80 **FY80: \$230,000** **TOTAL: \$230,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Harrison, D. C. ARC/Sandler, H. 56-Medical Sciences

NCC 2-55 **Stanford University** **1424**
The research and training activities for the Joint Institute for Aeronautics and Acoustics
Period *Obligations*
12/01/79-11/30/80 **FY80: \$124,329** **TOTAL: \$124,329**
Prin Invest *NASA Tech Officer* *CASE Category*
Karamcheti, K. ARC/Snyder, C. T. 41-Aero Engr

NCC 2-59 **Stanford University** **1425**
Joint Institute for Aeronautics and Acoustics: Study of trailing edge flows at high Reynolds number
Period *Obligations*
12/01/79-11/30/80 **FY80: \$68,492** **TOTAL: \$68,492**
Prin Invest *NASA Tech Officer* *CASE Category*
Karamcheti, K. ARC/Marvin, J. G. 41-Aero Engr
ARC/Cleary, J.

NCC 2-62 **Stanford University** **1426**
Stanford/Ames Joint Institute for Aeronautics and Acoustics: Studies of turbulent separation of airfoils and wings
Period *Obligations*
10/01/79-10/31/80 **FY80: \$55,000** **TOTAL: \$55,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Karamcheti, K. ARC/Olson, L. E. 41-Aero Engr
Wadcock, A. J.

NCC 2-66 **Stanford University** **1427**
The Fourth International Conference on Photon Correlation Techniques in Fluid Mechanics
Period *Obligations*
02/01/80-10/31/80 **FY80: \$45,000** **TOTAL: \$45,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Karamcheti, K. ARC/Chapman, G. T. 19-Phys Sci, NEC

NCC 2-70 **Stanford University** **1428**
The effect of space flight as simulated by bed rest on drug disposition
Period *Obligations*
01/01/80-12/31/80 **FY80: \$80,000** **TOTAL: \$80,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Harrison, D. C. ARC/Sandler, H. 56-Medical Sciences

NCC 2-74 **Stanford University** **1429**
Stanford/Ames Joint Institute for Aeronautics and Acoustics: Aerodynamic studies: relating to short-haul aircraft
Period *Obligations*
03/01/80-02/28/81 **FY80: \$40,000** **TOTAL: \$40,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Karamcheti, K. ARC/Dickey, D. 41-Aero Engr
Ayoub, A.
Levine, H.

NCC 2-75 **Stanford University** **1430**
Stanford/Ames Joint Institute for Aeronautics and Acoustics: Flight effects on jet noise
Period *Obligations*
03/01/80-02/28/81 **FY80: \$75,494** **TOTAL: \$75,494**
Prin Invest *NASA Tech Officer* *CASE Category*
Karamcheti, K. ARC/Atencio, A. 41-Aero Engr
Dash, R. ARC/Hickey, D.
Chang, I. D.

NCC 2-76 **Stanford University** **1431**
Joint Institute for Aeronautics and Acoustics: Studies of the effects of fields on noise direction
Period *Obligations*
03/01/80-02/28/81 **FY80: \$75,000** **TOTAL: \$75,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Karamcheti, K. ARC/Soderman, P. T. 41-Aero Engr
Levine, H. ARC/Hickey, D.
Koutsoyannis, S.

NASA'S UNIVERSITY PROGRAM **CALIFORNIA (Continued)**

NCC 2-77 **Stanford University** **1432**
Boundary layers and wakes of oscillating airfoils at subsonic and transonic speeds
Period *Obligations*
03/01/80-02/28/81 **FY80: \$80,000** **TOTAL: \$80,000**
Pnn Invest *NASA Tech Officer* *CASE Category*
Karamcheti, K. ARC/Davis, S. 41-Aero Engr
Bodapati, S.

NCC 2-82 **Stanford University** **1433**
Photodiagnostics of turbulent flows using laser-induced fluorescence
Period *Obligations*
10/01/80-09/30/81 **FY80: \$43,459** **TOTAL: \$43,459**
Pnn Invest *NASA Tech Officer* *CASE Category*
Bershafer, D. ARC/McKenzie, R. L. 41-Aero Engr

NCC 2-89 **Stanford University** **1434**
Joint Institute for Aeronautics and Acoustics: Studies of rotor aeroacoustics
Period *Obligations*
06/01/80-05/31/82 **FY80: \$520,000** **TOTAL: \$520,000**
Pnn Invest *NASA Tech Officer* *CASE Category*
Karamcheti, K. ARC/Presley, L. L. 41-Aero Engr
Levine, H. ARC/Ahtye, W.

NCC 2-97 **Stanford University** **1435**
Development of a three dimensional unsteady transonic full potential algorithm with arbitrary geometry capability
Period *Obligations*
11/01/80-01/15/81 **FY80: \$7,596** **TOTAL: \$7,596**
Pnn Invest *NASA Tech Officer* *CASE Category*
Steger, T. ARC/Caradonna, F. X. 41-Aero Engr
ARC/Morse, H. A

NGL 05-020-007 **Stanford University** **1436**
Guidance and control of flight vehicles
Period *Obligations*
08/17/72-08/14/82 **FY80: \$136,875** **TOTAL: \$1,684,564**
Pnn Invest *NASA Tech Officer* *CASE Category*
Bryson, A. E. ARC/Erzberger, H. 49-Engr, NEC
ARC/Creer, B. Y

NGL 05-020-008 **Stanford University** **1437**
A study of the effects on the Earth's environment of very low frequency radiation into the magnetosphere from electrical transmission lines and ground based very low frequency transmitters
Period *Obligations*
09/01/61-02/28/81 **FY80: \$285,000** **TOTAL: \$1,925,443**
Pnn Invest *NASA Tech Officer* *CASE Category*
Helliwell, R. A. HD-ST/Hedin, A. E. 13-Physics
HD-ST/Schmerling, E. R.

NGL 05-020-014 **Stanford University** **1438**
Theoretical and experimental radio and radar studies of lunar, planetary ionospheres, atmospheres, and surfaces of Sun and interplanetary medium
Period *Obligations*
04/30/63-09/30/80 **FY80: \$221,777** **TOTAL: \$3,536,351**
Pnn Invest *NASA Tech Officer* *CASE Category*
Eshleman, V. R. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-ST/Brunk, W. C.

NGL 05-020-103 **Stanford University** **1439**
Investigation of laser dynamics, modulation and control by means of intra-cavity time varying perturbation
Period *Obligations*
05/16/66-03/31/80 **FY80:** **TOTAL: \$1,122,000**
Pnn Invest *NASA Tech Officer* *CASE Category*
Harris, S. E. HD-RE/Fitzmaurice, M. W.
Siegman, A. E. GSFC/McElroy, J. H. 45-Elec Engr
Young, J. F.

NGL 05-020-176 **Stanford University** **1440**
Investigation of space-related whistler propagation phenomena in laboratory plasmas
Period *Obligations*
03/02/67-06/30/81 **FY80: \$95,000** **TOTAL: \$1,274,800**
Pnn Invest *NASA Tech Officer* *CASE Category*
Crawford, F. W. HD-ST/Hedin, A. E. 19-Phys Sci, NEC
HD-ST/Schmerling, E. R.

NGL 05-020-243 **Stanford University** **1441**
Refined methods of aeroelastic analysis and optimization
Period *Obligations*
08/14/67-08/31/82 **FY80: \$36,419** **TOTAL: \$228,974**
Pnn Invest *NASA Tech Officer* *CASE Category*
Ashley, H. LARC/Doggett, R. V., Jr. 41-Aero Engr

NGL 05-020-272 **Stanford University** **1442**
Theoretical study of the solar atmosphere and the structure of active regions
Period *Obligations*
06/07/68-09/30/79 **FY80: \$96,196** **TOTAL: \$1,040,196**
Pnn Invest *NASA Tech Officer* *CASE Category*
Sturrock, P. A. HD-ST/Bohlin, J. D. 13-Physics

NGL 05-020-305 **Stanford University** **1443**
Evaluation of the cardiovascular system during various circulatory stresses
Period *Obligations*
09/17/68-11/30/81 **FY80:** **TOTAL: \$1,409,032**
Pnn Invest *NASA Tech Officer* *CASE Category*
Harrison, D. C. ARC/Sandler, H. 56-Medical Sciences

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NGL 05-020-582 **Stanford University** **1444**
Abiotic origins of optical activity
Period *Obligations*
04/18/72-04/30/81 FY80: \$32,757 TOTAL: \$315,335
Prin Invest *NASA Tech Officer* *CASE Category*
Bonner, W. A. HD-SB/Devincenzi, D. L. 59-Life Sci, NEC

NGR 05-020-001 **Stanford University** **1445**
Ionospheric research utilizing satellite radio transmissions
Period *Obligations*
07/20/59-12/31/79 FY80: TOTAL: \$1,374,622
Prin Invest *NASA Tech Officer* *CASE Category*
DaRosa, A. V. HD-ST/Kaiser, M. L. 19-Phys Sci, NEC
HD-ST/Schmerling, E. R.

NGR 05-020-004 **Stanford University** **1446**
Cytochemical studies of planetary microorganisms
Period *Obligations*
04/01/60-05/30/80 FY80: TOTAL: \$4,673,087
Prin Invest *NASA Tech Officer* *CASE Category*
Lederberg, J. HD-SB/Young, R. S. 51-Biological Sci
Levinthal, F.

NGR 05-020-452 **Stanford University** **1447**
Instrumentation study development for high energy physics experiment in space
Period *Obligations*
06/09/70-12/31/81 FY80: \$270,000 TOTAL: \$2,42,941
Prin Invest *NASA Tech Officer* *CASE Category*
Hofstadter, R. HD-SC/Kaluzański, L. J. 11-Astronomy
HD-SC/Opp, A. G.

NGR 05-020-456 **Stanford University** **1448**
Effects of altered gravitational stress on fluid balance and circulation of blood
Period *Obligations*
05/13/70-12/31/80 FY80 TOTAL: \$392,090
Prin Invest *NASA Tech Officer* *CASE Category*
Luetscher, J. A. ARC/Keil, I. C. 56-Medical Sciences

NGR 05-020-559 **Stanford University** **1449**
Structure of solar magnetic and velocity fields
Period *Obligations*
03/22/72-10/31/80 FY80: \$95,000 TOTAL: \$737,000
Prin Invest *NASA Tech Officer* *CASE Category*
Wilcox, J. M. HD-ST/Chipman, F. 11-Astronomy

NGR 05-020-634 **Stanford University** **1450**
Biomedical technology transfer
Period *Obligations*
12/07/72-12/31/80 FY80: \$40,000 TOTAL: \$1,531,488
Prin Invest *NASA Tech Officer* *CASE Category*
Harrison, D. C. ARC/Sandler, H. 56-Medical Sciences

NGR 05-020-649 **Stanford University** **1451**
Study of lunar and planetary surfaces
Period *Obligations*
03/06/73-04/01/81 FY80: \$21,000 TOTAL: \$148,170
Prin Invest *NASA Tech Officer* *CASE Category*
Howard, H. T. HD-SL/Boyce, J. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NGR 05-020-668 **Stanford University** **1452**
Magnetosphere structure and radiation mechanisms on pulsars
Period *Obligations*
11/01/73-01/31/81 FY80: \$34,500 TOTAL: \$192,500
Prin Invest *NASA Tech Officer* *CASE Category*
Sturrock, P. A. HD-SC/Kaluzański, L. J. 11-Astronomy
HD-SC/Opp, A. G.

NGR 05-020-690 **Stanford University** **1453**
Miniature gas analysis systems
Period *Obligations*
09/01/73-11/30/80 FY80: \$30,000 TOTAL: \$282,632
Prin Invest *NASA Tech Officer* *CASE Category*
Angell, J. ARC/Carle, G. C. 56-Medical Sciences

NGT 05-020-409 **Stanford University** **1454**
Summer faculty fellowship program in engineering systems design
Period *Obligations*
12/18/69-12/31/79 FY80: TOTAL: \$1,036,626
Prin Invest *NASA Tech Officer* *CASE Category*
Adams, J. L. HD-LU/Carter, C. H. 49-Engr, NEC

NGT 05-020-412 **Stanford University** **1455**
A summer program of NASA summer faculty fellowships
Period *Obligations*
12/16/69-03/31/81 FY80: \$248,053 TOTAL: \$1,710,514
Prin Invest *NASA Tech Officer* *CASE Category*
Bershtader, D. HD-LU/Carter, C. H. 49-Engr, NEC
Mayers, J.

NGT 05-020-800 **Stanford University** **1456**
Graduate student researchers program
Period *Obligations*
09/01/80-08/31/81 FY80: \$7,000 TOTAL: \$7,000
Prin Invest *NASA Tech Officer* *CASE Category*
Jaffe, R. ARC/Jaffe, R. 12-Chemistry
ARC/Arnold, J. O.

NGT 05-020-801 **Stanford University** **1457**
Graduate student training program in computational fluid dynamics
Period *Obligations*
07/01/80-06/30/81 FY80: \$75,000 TOTAL: \$75,000
Prin Invest *NASA Tech Officer* *CASE Category*
Chapman, D. R. HD-RT/Graves, R. A. 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NSG 2092 **Stanford University** **1458**
In vivo determination of bone properties from mechanical measurements
Period *Obligations*
07/01/75-10/31/80 **FY80: \$26,000** **TOTAL: \$125,119**
Prin Invest *NASA Tech Officer* *CASE Category*
Steele, C. R. ARC/Young, D. R. 56-Medical Sciences

NSG 2121 **Stanford University** **1459**
Preliminary design and computer simulation of a very large Fourier transform processor for the interstellar search system
Period *Obligations*
01/01/76-10/31/80 **FY80: \$177,000** **TOTAL: \$241,371**
Prin Invest *NASA Tech Officer* *CASE Category*
Peterson, A. M. ARC/Wolfe, J. H. 49-Engr, NEC

NSG 2203 **Stanford University** **1460**
Air cargo in an integrated transportation
Period *Obligations*
02/01/77-12/31/80 **FY80: \$22,820** **TOTAL: \$113,017**
Prin Invest *NASA Tech Officer* *CASE Category*
Dajani, J. R. ARC/Faye, A. E. 41-Aero Engr

NSG 2289 **Stanford University** **1461**
Applications of cars spectroscopy to turbulence measurements
Period *Obligations*
01/01/78-12/31/80 **FY80: \$30,000** **TOTAL: \$96,833**
Prin Invest *NASA Tech Officer* *CASE Category*
Byer, R. L. ARC/McKenzie, R. L. 13-Physics

NSG 2308 **Stanford University** **1462**
Dispersion relationships in turbulence with application to noise/turbulence diagnosis
Period *Obligations*
03/01/78-02/28/81 **FY80: \$40,000** **TOTAL: \$142,842**
Prin Invest *NASA Tech Officer* *CASE Category*
Karamcheti, K. ARC/Horne, C. 41-Aero Engr
Koutsoyannis, S. ARC/Hickey, D. H.

NSG 2359 **Stanford University** **1463**
Aerodynamics, aeroelasticity and stability of hang gliders
Period *Obligations*
01/01/79-12/31/80 **FY80: \$27,429** **TOTAL: \$52,429**
Prin Invest *NASA Tech Officer* *CASE Category*
Ashley, H. ARC/Ciffone, D. L. 41-Aero Engr

NSG 2392 **Stanford University** **1464**
The behavior of sub-grid scale motions in turbulent shear flow
Period *Obligations*
07/01/79-09/30/80 **FY80:** **TOTAL: \$22,221**
Prin Invest *NASA Tech Officer* *CASE Category*
Cantwell, B. ARC/Chapman, G. T. 41-Aero Engr

NSG 2458 **Stanford University** **1465**
Control of V/STOL aircraft in ground effect
Period *Obligations*
08/01/79-08/31/81 **FY80: \$20,000** **TOTAL: \$37,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Debra, D. B. ARC/Franklin, J. A. 41-Aero Engr
Bryson, A. E.

NSG 3124 **Stanford University** **1466**
Heat transfer and hydrodynamic studies on a curved surface with full-coverage film cooling
Period *Obligations*
10/01/76-10/31/79 **FY80:** **TOTAL: \$212,770**
Prin Invest *NASA Tech Officer* *CASE Category*
Johnston, J. P. LERC/Gaugler, R. E. 46-Mech Engr
Kays, W. M.
Moffat, R. J.

NSG 4002 **Stanford University** **1467**
Theoretical and experimental investigations in the control of aircraft
Period *Obligations*
09/01/74-10/30/80 **FY80: \$70,000** **TOTAL: \$400,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Debra, D. B. DFRC/Edwards, J. W. 41-Aero Engr
Ashley, H.
Bryson, A. E.

NSG 5131 **Stanford University** **1468**
Spectroscopy of cosmic X-ray sources of the solar corona
Period *Obligations*
11/15/76-11/30/80 **FY80: \$180,000** **TOTAL: \$705,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Walker, A. B. GSFC/Guidotti, J. 13-Physics
Stern, R. A. HD-ST/Bohlin, J. D.
Underwood, J. H.

NSG 5254 **Stanford University** **1469**
Stochastic modeling of time-averaged equations for climate dynamics
Period *Obligations*
03/15/78-03/14/81 **FY80: \$80,000** **TOTAL: \$250,900**
Prin Invest *NASA Tech Officer* *CASE Category*
Spreiter, J. R. GSFC/Halem, M. 31-Atmos Sci

NSG 5417 **Stanford University** **1470**
Determination of interstellar abundances by correlated X-ray and ultraviolet observations
Period *Obligations*
10/01/79-05/31/81 **FY80: \$24,200** **TOTAL: \$24,200**
Prin Invest *NASA Tech Officer* *CASE Category*
Walker, A. B. GSFC/Boggess, A. 11-Astronomy
Stern, R. A.
Antiochos, S. K.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NSG 7092 **Stanford University** **1471**
Energy release in solar flares based on OSO-5 data
Period Obligations
10/01/74-10/31/80 FY80: \$45,000 TOTAL: \$260,000
Pnn Invest NASA Tech Officer CASE Category
Petrosian, V. HD-ST/Chipman, E. 11-Astronomy

NSG 7204 **Stanford University** **1472**
Theoretical analyses of relativistic gravitational experiments
Period Obligations
10/01/75-09/30/81 FY80: \$40,100 TOTAL: \$109,785
Pnn Invest NASA Tech Officer CASE Category
Will, C. M. HD-SC/Weiler, E. J. 11-Astronomy
HD-SC/Bogges, N. W.

NSG 7476 **Stanford University** **1473**
Investigation of the structure and composition of the International Solar Mission and of fluorescence and self-absorption at low energies in binary X-ray sources using SAS-3 observations
Period Obligations
06/01/78-02/28/80 FY80: TOTAL: \$21,100
Pnn Invest NASA Tech Officer CASE Category
Walker, A. B. HD-SC/Kaluzionski, L. J. 11-Astronomy
Ride, S. K. HD-SC/Fishman, G. J.

NSG 7538 **Stanford University** **1474**
Stereophotogrammetric and stereophotometric analysis of Viking lander imaging data
Period Obligations
04/01/79-09/30/80 FY80: \$102,689 TOTAL: \$143,347
Pnn Invest NASA Tech Officer CASE Category
Levinthal, E. HD-SL/Boyce, J. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NSG 7552 **Stanford University** **1475**
Analysis of coronal flow and wave phenomena during the solar occultation of the Viking Earth radio link
Period Obligations
10/01/78-09/30/80 FY80: \$47,882 TOTAL: \$91,882
Pnn Invest NASA Tech Officer CASE Category
Tyler, G. L. HD-ST/Chipman, E. 13-Physics

NSG 7561 **Stanford University** **1476**
Reduction and analysis of Viking bistatic radar observations of Mars from the winter 1977/1978 apparition
Period Obligations
03/01/79-03/31/81 FY80: \$57,344 TOTAL: \$127,344
Pnn Invest NASA Tech Officer CASE Category
Tyler, G. L. HD-SL/Brunk, W. E. 11-Astronomy

NSG 7619 **Stanford University** **1477**
Studies on lasers and laser devices
Period Obligations
04/01/77-03/31/80 FY80: TOTAL: \$65,000
Pnn Invest NASA Tech Officer CASE Category
Harris, S. E. HD-RT/Schwenk, F. 13-Physics
Siegman, A. E. HD-RS/Rubin, B.

NAG 2-19 **University of California - Berkeley** **1478**
A study of methods for improving capacity at major airports
Period Obligations
01/01/80-12/31/80 FY80: \$30,000 TOTAL: \$30,000
Pnn Invest NASA Tech Officer CASE Category
Kanafani, A. ARC/Faye, A. E. 41-Aero Engr

NAG 3-88 **University of California - Berkeley** **1479**
Coherent conversion of the sunlight spectrum
Period Obligations
07/28/80-07/27/81 FY80: \$50,000 TOTAL: \$50,000
Pnn Invest NASA Tech Officer CASE Category
Gustafson, T. K. LERC/Anderson, L. M. 13-Physics

NAG 3-111 **University of California - Berkeley** **1480**
First-phase research and conceptual analysis for commercialization of redox energy storage and phosphoric acid fuel cell system
Period Obligations
10/01/80-06/30/81 FY80: \$189,982 TOTAL: \$189,982
Pnn Invest NASA Tech Officer CASE Category
Sullivan, L. A. LERC/Bollenbacher, G. 99-Multi-Discip

NAG 5-27 **University of California - Berkeley** **1481**
Investigation of the variability in the X-ray emission of extragalactic sources
Period Obligations
03/15/80-03/14/81 FY80: \$7,000 TOTAL: \$7,000
Pnn Invest NASA Tech Officer CASE Category
Bowyer, C. S. GSFC/Corrigan, J. P. 11-Astronomy

NAG 5-28 **University of California - Berkeley** **1482**
Spectral variability of accreting degenerate dwarfs
Period Obligations
03/15/80-03/14/81 FY80: \$8,310 TOTAL: \$8,310
Pnn Invest NASA Tech Officer CASE Category
Bowyer, C. S. GSFC/Corrigan, J. P. 11-Astronomy

NAG 5-55 **University of California - Berkeley** **1483**
Study of chromospheric activity in spectroscopic binary systems
Period Obligations
05/01/80-08/31/81 FY80: \$16,000 TOTAL: \$16,000
Pnn Invest NASA Tech Officer CASE Category
Kuhi, L. GSFC/Bogges, A. 11-Astronomy

NAG 5-69 **University of California - Berkeley** **1484**
Eclipse coverage of selected variable and binary stars
Period Obligations
06/01/80-05/31/81 FY80: \$9,200 TOTAL: \$9,200
Pnn Invest NASA Tech Officer CASE Category
Bowyer, C. S. GSFC/Bogges, A. 11-Astronomy
Basri, G. S.
Charles, P.

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NAG 5-95 University of California - Berkeley 1485 Research relative to low noise amplifiers for radio astronomy

Period	Obligations	
09/01/80-08/31/81	FY80: \$39,944	TOTAL: \$39,944
Prin Invest	NASA Tech Officer	CASE Category
Welch, W. J.	GSFC/Clark, T. A.	45-Elec Engr
	GSFC/Coates, R. J.	

NAG 5-103 University of California - Berkeley 1486 Ultraviolet study of hot stars associated with ring-nebulae

Period	Obligations	
09/01/80-08/31/81	FY80: \$1,725	TOTAL: \$1,725
Prin Invest	NASA Tech Officer	CASE Category
Chu, Y. H.	GSFC/Bogges, A.	11-Astronomy

NAG 5-117 University of California - Berkeley 1487 Long term X-ray observations of systems with unusual optical counterparts

Period	Obligations	
10/01/80-09/30/81	FY80: \$4,600	TOTAL: \$4,600
Prin Invest	NASA Tech Officer	CASE Category
Bowyer, C. S.	GSFC/Corrigan, J. P.	11-Astronomy

NAG 8-301 University of California - Berkeley 1488 Improved positions of heao-1 low energy X-ray sources, an X-ray and optical study of nearby Seyfert 2 and emission line galaxies, and correlation of coronal and chromospheric act with binary period

Period	Obligations	
03/01/80-02/28/81	FY80: \$20,022	TOTAL: \$20,022
Prin Invest	NASA Tech Officer	CASE Category
Bowyer, C. S.	MSFC/Jones, J. B.	11-Astronomy
Mason, K. O.		
Phillips, M. M.		

NAG 8-303 University of California - Berkeley 1489 Improved positions of HEAO-1 low energy X-ray coronae of bootes

Period	Obligations	
01/28/80-01/27/81	FY80: \$10,000	TOTAL: \$10,000
Prin Invest	NASA Tech Officer	CASE Category
Bowyer, C. S.	MSFC/Jones, J. B.	11-Astronomy
Walter, F. M.		
Lampton, M.		

NAG 8-311 University of California - Berkeley 1490 Observation of rich galaxy cluster on high energy astronomical observatory-B guest investigator program

Period	Obligations	
01/21/80-01/20/81	FY80: \$7,964	TOTAL: \$7,964
Prin Invest	NASA Tech Officer	CASE Category
Silk, J. I.	MSFC/Jones, J. B.	11-Astronomy
White, S. D.		

NAG 8-312 University of California - Berkeley 1491 Evolution of FE abundance in clusters of galaxies

Period	Obligations	
01/28/80-01/27/81	FY80: \$7,228	TOTAL: \$7,228
Prin Invest	NASA Tech Officer	CASE Category
Welsh, W. J.	MSFC/Jones, J. B.	11-Astronomy
Lea, S. M.		

NAG 8-320 University of California - Berkeley 1492 Extended gaseous halos of galaxies and gaseous halos of extended radio galaxies

Period	Obligations	
02/01/80-01/31/81	FY80: \$8,000	TOTAL: \$8,000
Prin Invest	NASA Tech Officer	CASE Category
Silk, J. I.	MSFC/Jones, J. B.	11-Astronomy

NAG 8-333 University of California - Berkeley 1493 High resolution X-ray, optical and radio imagery of Parks 0837-12

Period	Obligations	
02/15/80-02/14/81	FY80: \$6,724	TOTAL: \$6,724
Prin Invest	NASA Tech Officer	CASE Category
Spinrad, H.	MSFC/Jones, J. B.	11-Astronomy
Mason, K. O.		
Bower, S.		

NAG 8-336 University of California - Berkeley 1494 X-ray emission from T Tauri stars

Period	Obligations	
03/01/80-02/28/81	FY80: \$6,500	TOTAL: \$6,500
Prin Invest	NASA Tech Officer	CASE Category
Kuhi, L. V.	MSFC/Jones, J. B.	11-Astronomy
Walter, F. M.		

NAG 8-351 University of California - Berkeley 1495 High Energy Astronomical Observatory-2 guest investigator program: A high resolution study of a very distant rich and luminous cluster of galaxies

Period	Obligations	
06/25/80-06/24/81	FY80: \$7,776	TOTAL: \$7,776
Prin Invest	NASA Tech Officer	CASE Category
Silk, J. I.	MSFC/Swearingen, J. C.	11-Astronomy

NAG 8-381 University of California - Berkeley 1496 An X-ray study of pre-main sequence stars in NGC 2264 with the HRI

Period	Obligations	
09/22/80-09/21/81	FY80: \$7,510	TOTAL: \$7,510
Prin Invest	NASA Tech Officer	CASE Category
Kuhi, L.	MSFC/Stone, J. F.	11-Astronomy

NAGW 44 University of California - Berkeley 1497 The nature of dwarf novae and related systems

Period	Obligations	
03/01/80-02/28/81	FY80: \$14,961	TOTAL: \$14,961
Prin Invest	NASA Tech Officer	CASE Category
Lampton, M.	HD-SC/Kaluzienski, L. J.	11-Astronomy
	HD-SC/Opp, A. G.	

NASA'S UNIVERSITY PROGRAM **CALIFORNIA (Continued)**

NAGW 66 **University of California - Berkeley** **1498**
Microwave and theoretical studies related to the COBE satellite mission

Period	Obligations
07/01/80-06/30/81	FY80: \$15,000 TOTAL: \$15,000
Prin Invest	NASA Tech Officer CASE Category
Smoot, G. F.	HD-SC/Boggess, N. W. 11-Astronomy
	HD-SC/Weiler, E. J.

NAGW 75 **University of California - Berkeley** **1499**
Theoretical study of auroral arc formation

Period	Obligations
06/01/80-05/31/81	FY80: \$105,000 TOTAL: \$105,000
Prin Invest	NASA Tech Officer CASE Category
Hudson, M. K.	HD-ST/Birmingham, T. J. 13-Physics
	HD-ST/Newton, G. P.

NAS 1-16268 **University of California - Berkeley** **1500**
Definition study for an advanced cosmic ray experiment utilizing the Long Duration Exposure Facility (LDEF)

Period	Obligations
07/17/80-10/01/81	FY80: \$60,000 TOTAL: \$60,000
Prin Invest	NASA Tech Officer CASE Category
Price, P. B.	LARC/Jones, J. L. 11-Astronomy

NAS 2-10499 **University of California - Berkeley** **1501**
Monkey metabolism, body composition and cardiovascular function in weightlessness,

Period	Obligations
01/17/80-12/31/80	FY80: \$15,133 TOTAL: \$15,133
Prin Invest	NASA Tech Officer CASE Category
Pace, N.	ARC/Rasmussen, D. 51-Biological Sci
	ARC/Connolly, J.

NAS 2-10504 **University of California - Berkeley** **1502**
Scale relationships in mammalian metabolism in weightlessness

Period	Obligations
01/17/80-12/31/80	FY80: \$15,133 TOTAL: \$15,133
Prin Invest	NASA Tech Officer CASE Category
Pace, N.	ARC/Rasmussen, D. 51-Biological Sci
	ARC/Connolly, J.

NAS 2-10658 **University of California - Berkeley** **1503**
Metabolic rate and thyroid function in the monkey subjects of the Cosmos 81 mission

Period	Obligations
06/01/80-09/30/82	FY80: \$10,000 TOTAL: \$10,000
Prin Invest	NASA Tech Officer CASE Category
Pace, N.	ARC/Heinrich, M. 51-Biological Sci

NAS 5-20079 **University of California - Berkeley** **1504**
Energetic particles flux experiment for International Sun-Earth Explorer mother and daughter spacecraft

Period	Obligations
05/23/74-12/31/81	FY80: TOTAL: \$1,429,290
Prin Invest	NASA Tech Officer CASE Category
Anderson, K. A.	GSFC/Kowalski, G. E. 13-Physics

NAS 5-20080 **University of California - Berkeley** **1505**
Quasi-electric fields experiment for ISEE mother/daughter spacecraft

Period	Obligations
05/21/74-10/30/79	FY80: TOTAL: \$993,555
Prin Invest	NASA Tech Officer CASE Category
Mozer, F. S.	GSFC/Davis, M. A. 13-Physics

NAS 5-20995 **University of California - Berkeley** **1506**
Isotopic composition of primary cosmic rays H thru FE for ISEE-C spacecraft

Period	Obligations
03/19/75-09/30/81	FY80: \$52,000 TOTAL: \$1,560,000
Prin Invest	NASA Tech Officer CASE Category
Heckman, H. K.	GSFC/Wales, R. O. 13-Physics
	GSFC/Corrigan, J. P.

NAS 5-22307 **University of California - Berkeley** **1507**
Solar X-ray and interplanetary and solar electrons for the ISEE-C spacecraft

Period	Obligations
04/11/75-12/31/83	FY80: \$132,719 TOTAL: \$1,725,719
Prin Invest	NASA Tech Officer CASE Category
Anderson, K. A.	GSFC/Wales, R. O. 32-Geological Sci
	GSFC/Corrigan, J. P.

NAS 5-24189 **University of California - Berkeley** **1508**
Study on the feasibility of developing three telescopes in the 100-1000A range

Period	Obligations
07/19/77-06/30/80	FY80: TOTAL: \$63,752
Prin Invest	NASA Tech Officer CASE Category
Bowyer, C. S.	GSFC/Willis, S. E. 11-Astronomy

NAS 5-24445 **University of California - Berkeley** **1509**
Development of instrumentation for an extreme ultraviolet Explorer

Period	Obligations
02/28/78-10/02/80	FY80: \$219,686 TOTAL: \$619,679
Prin Invest	NASA Tech Officer CASE Category
Bowyer, C. S.	GSFC/Willis, S. E. 11-Astronomy
	GSFC/Townsend, M. R.

NAS 5-25007 **University of California - Berkeley** **1510**
Microwave and theoretical studies for Cosmic Background Explorer (COBE) satellite

Period	Obligations
03/01/78-02/28/81	FY80: \$77,000 TOTAL: \$203,719
Prin Invest	NASA Tech Officer CASE Category
Smoot, G. F.	GSFC/Mather, J. C. 11-Astronomy
	GSFC/Donohoe, M. J.

NASA'S UNIVERSITY PROGRAM **CALIFORNIA (Continued)**

NAS 5-25070 **University of California - Berkeley** **1511**
Provide engineering and consulting services to the space telescope instrument science team

Period	Obligations	
05/20/78-01/31/84	FY80: \$36,000	TOTAL: \$86,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
King, I.	GSFC/Leckrone, D. S.	11-Astronomy

NAS 5-25453 **University of California - Berkeley** **1512**
Plastic track detector study

Period	Obligations	
03/16/79-03/15/80	FY80:	TOTAL: \$29,999
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Price, P. B.	GSFC/Campbell, C. E.	47-Materials Engr

NAS 5-25770 **University of California - Berkeley** **1513**
International Sun-Earth Explorers: A data reduction and analysis for the quasi-electric fields experiment

Period	Obligations	
11/01/79-10/31/80	FY80: \$173,863	TOTAL: \$173,863
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moler, F. S.	GSFC/Corrigan, J. P.	11-Astronomy

NAS 5-25892 **University of California - Berkeley** **1514**
Solar X-ray flare experiment for the international solar polar mission

Period	Obligations	
10/01/79-09/30/83	FY80: \$45,000	TOTAL: \$47,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, D. A.	GSFC/Porreca, G.	11-Astronomy
Lin, R. P.	GSFC/Cline, T.	

NAS 5-25958 **University of California - Berkeley** **1515**
Design, fabrication, assembly and installation of an International Sun-Earth Explorers 3 data box

Period	Obligations	
12/03/79-08/03/80	FY80: \$57,450	TOTAL: \$57,450
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mozier, F. S.	GSFC/Wales, R. O.	31-Atmos Sci
	GSFC/Corrigan, J. P.	

NAS 5-25980 **University of California - Berkeley** **1516**
International Sun-Earth Explorers A and B data reduction and analysis for the energetic particles flux experiment

Period	Obligations	
11/01/79-10/31/80	FY80: \$175,000	TOTAL: \$175,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, K. A.	GSFC/Wales, R. O.	11-Astronomy

NAS 8-32577 **University of California - Berkeley** **1517**
Spacelab mission 1 exp 95 far UV observations using Faust instrument on the first Spacelab mission

Period	Obligations	
05/10/77-11/30/81	FY80: \$138,235	TOTAL: \$453,103
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bowyer, C. S.	MSFC/Marmann, R.	11-Astronomy
Lampton, M.		

NAS 8-33011 **University of California - Berkeley** **1518**
High energy X-ray observation of clusters of galaxies

Period	Obligations	
06/01/78-06/07/79	FY80:	TOTAL: \$22,675
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, K. A.	MSFC/Dailey, C. C.	11-Astronomy

NAS 8-33349 **University of California - Berkeley** **1519**
A survey and detailed studies of selected systems

Period	Obligations	
03/26/79-03/25/80	FY80:	TOTAL: \$25,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bowyer, C. S.	MSFC/Jones, J. B., Jr.	11-Astronomy

NAS 8-33356 **University of California - Berkeley** **1520**
The interaction of supernova remnants with interstellar medium

Period	Obligations	
06/12/79-06/11/80	FY80:	TOTAL: \$8,001
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McKee, C.	MSFC/Jones, J. B., Jr.	11-Astronomy

NAS 8-33357 **University of California - Berkeley** **1521**
Spatial distribution of H₂ line emission in the Virgo cluster of galaxies

Period	Obligations	
07/02/79-07/01/80	FY80:	TOTAL: \$5,342
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, K. A.	MSFC/Barnes, J. B.	11-Astronomy
Lea, S. M.		

NAS 9-14565 **University of California - Berkeley** **1522**
Study development of improved photointerpretative techniques to wheat identification

Period	Obligations	
05/15/75-11/14/80	FY80: \$270,000	TOTAL: \$1,476,203
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Colwell, R. N.	JSC/Brown, D.	39-Env Sci, NEC

NAS 9-15987 **University of California - Berkeley** **1523**
Reformat and documentation of a survey planning model

Period	Obligations	
10/02/79-09/30/80	FY80: \$26,200	TOTAL: \$26,200
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wensel, L. C.	JSC/Hancock, K. J.	39-Env Sci, NEC

NCA 2-50001 **University of California - Berkeley** **1524**
Influence of fluid rheology and air resistance on the behavior of liquid jets and drops

Period	Obligations	
10/01/79-12/31/80	FY80:	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goren, S. L.	ARC/Altman, R. L.	12-Chemistry

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NCA 2-50002 University of California - Berkeley 1525
Primitive photobiological mechanisms of salt transport
Period Obligations
10/01/79-09/30/81 FY80: \$22,915 TOTAL: \$22,915
Prin Invest NASA Tech Officer CASE Category
Packer, L. ARC/Lanyi, J. K. 51-Biological Sci

NCA 2-50004 University of California - Berkeley 1526
Climate change and the history of Greenland
Period Obligations
06/01/80-09/01/80 FY80: \$4,252 TOTAL: \$4,252
Prin Invest NASA Tech Officer CASE Category
Granger, O. ARC/Toon, O. B. 39-Env Sci, NEC

NCA 2-50006 University of California - Berkeley 1527
Microwave measurement of snow wetness accumulation
Period Obligations
09/01/80-08/31/81 FY80: \$7,000 TOTAL: \$7,000
Prin Invest NASA Tech Officer CASE Category
Angelakos, D. ARC/Linlor, W. I. 39-Env Sci, NEC

NCA 2-50905 University of California - Berkeley 1528
Optimal additives to produce anti-misting fuels
Period Obligations
09/15/79-10/31/80 FY80: TOTAL: \$30,000
Prin Invest NASA Tech Officer CASE Category
Williams, M. C. ARC/Altman, R. L. 12-Chemistry
Grens, E. A.

NCC 2-36 University of California - Berkeley 1529
Selected target search for extra-terrestrial intelligence observations
using very long base interferometry techniques and pattern
recognition studies
Period Obligations
10/16/79-11/15/80 FY80: \$56,666 TOTAL: \$56,666
Prin Invest NASA Tech Officer CASE Category
Welch, W. J. ARC/Billingham, J. 99-Multi-Discip
Bowyer, C. S.

NCC 2-54 University of California - Berkeley 1530
Irrigated lands assessments for water management
Period Obligations
01/01/80-12/31/80 FY80: \$233,549 TOTAL: \$233,549
Prin Invest NASA Tech Officer CASE Category
Colwell, R. N. ARC/Bauer, E. H. 19-Phys Sci, NEC

NCC 2-67 University of California - Berkeley 1531
Control and modeling of a CELSS (Controlled Ecology Life
Support System)
Period Obligations
03/01/80-02/28/81 FY80: \$76,657 TOTAL: \$76,657
Prin Invest NASA Tech Officer CASE Category
Auslander, D. M. ARC/MacElroy, R. D. 46-Mech Engr
Spear, R. C.
Tomizuka, M.

NCC 2-86 University of California - Berkeley 1532
Flight management systems
Period Obligations
06/01/80-11/30/80 FY80: \$19,969 TOTAL: \$19,969
Prin Invest NASA Tech Officer CASE Category
Stark, L. ARC/Wempe, T. E. 99-Multi-Discip

NGL 05-003-003 University of California - Berkeley 1533
Study of extraterrestrial life using reflection spectra as a basis
Period Obligations
08/01/60-10/31/80 FY80: \$127,000 TOTAL: \$4,135,081
Prin Invest NASA Tech Officer CASE Category
Calvin, M. HD-SB/Young, R. S. 32-Geological Sci
Burlingame, A. L.

NGL 05-003-017 University of California - Berkeley 1534
Investigation of high energy solar flare radiation and trapped
radiation, including balloon-borne and sounding rocket tests of
prototype detectors
Period Obligations
04/08/63-01/31/82 FY80: TOTAL: \$1,968,942
Prin Invest NASA Tech Officer CASE Category
Anderson, K. A. HD-ST/King, J. H. 19-Phys Sci, NEC
HD-ST/Schmerling, E. R.

NGL 05-003-272 University of California - Berkeley 1535
Research on radiation physics
Period Obligations
03/01/68-02/28/82 FY80: \$5,000 TOTAL: \$1,171,380
Prin Invest NASA Tech Officer CASE Category
Townes, C. H. HD-SC/Bogges, N. W. 1-Astronomy
HD-SC/Weiler, E. J.

NGL 05-003-404 University of California - Berkeley 1536
Integrated study of Earth resources in the state of California
using remote sensing techniques
Period Obligations
07/13/70-12/31/79 FY80: TOTAL: \$4,093,000
Prin Invest NASA Tech Officer CASE Category
Colewell, R. N. HD-ET/Vitale, J. A. 39-Env Sci, NEC
ARC/Arno, R. D.

NGL 05-003-409 University of California - Berkeley 1537
Lunar sample analysis
Period Obligations
01/26/71-01/31/81 FY80: \$142,704 TOTAL: \$1,114,192
Prin Invest NASA Tech Officer CASE Category
Reynolds, J. H. JSC/Harris, J. W. 13-Physics

NGL 05-003-497 University of California - Berkeley 1538
Research in space sciences
Period Obligations
04/05 72-03/31/82 FY80: \$185,000 TOTAL: \$1,985,000
Prin Invest NASA Tech Officer CASE Category
Price, P. B. HD-SP/Heninger, L. W. 99-Multi-Discip
HD-SP/Taylor, T. C.

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NGR 05-003-239 University of California - Berkeley 1539
Auroral zone rocket studies of electric fields and precipitating particles
Period Obligations
08/26/68-11/30/80 FY80: \$148,000 TOTAL: \$1,423,420
Prin Invest NASA Tech Officer CASE Category
Moser, F. S. GSFC/Guidotti, J. 13-Physics
Anderson, K. A.

NGR 05-003-376 University of California - Berkeley 1540
High resolution studies of cosmic rays and solar particles
Period Obligations
04/16/71-10/31/80 FY80: \$125,000 TOTAL: \$878,000
Prin Invest NASA Tech Officer CASE Category
Price, P. B. HD-SC/Kaluzienski, L. J. 11-Astronomy
HD-SC/Opp, A. G.

NGR 05-003-450 University of California - Berkeley 1541
Study of X-ray emission from galactic and extragalactic sources with emphasis on soft and ultra-soft wavelengths
Period Obligations
05/28/71-11/30/80 FY80: \$150,000 TOTAL: \$1,304,752
Prin Invest NASA Tech Officer CASE Category
Bowyer, C. S. GSFC/Guidotti, J. 11-Astronomy
HD-SC/Roman, N. G.

NGR 05-003-451 University of California - Berkeley 1542
Research in aeronautics and air transportation
Period Obligations
03/30/71-11/15/80 FY80: \$1,965 TOTAL: \$667,850
Prin Invest NASA Tech Officer CASE Category
Holt, M. ARC/Lee, G. 41-Aero Engr

NGR 05-003-452 University of California - Berkeley 1543
Infrared spectra of planetary atmospheres
Period Obligations
02/18/72-06/30/81 FY80: \$55,000 TOTAL: \$425,384
Prin Invest NASA Tech Officer CASE Category
Townes, C. H. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Murphy, R. E.

NGR 05-003-460 University of California - Berkeley 1544
The chemistry of living systems
Period Obligations
07/21/71-10/31/80 FY80: \$87,553 TOTAL: \$731,303
Prin Invest NASA Tech Officer CASE Category
Jukes, J. H. HD-SB/Devincenzi, D. L. 12-Chemistry

NGR 05-003-511 University of California - Berkeley 1545
Spectrographic observation of infrared lines
Period Obligations
03/01/73-10/31/80 FY80: \$54,043 TOTAL: \$351,215
Prin Invest NASA Tech Officer CASE Category
Townes, C. H. ARC/Haughney, L. C. 11-Astronomy

NGR 05-003-513 University of California - Berkeley 1546
Heavy ion fragment experiments at the bevatron
Period Obligations
10/01/73-09/30/80 FY80: \$129,200 TOTAL: \$959,520
Prin Invest NASA Tech Officer CASE Category
Heckman, H. H. HD-SC/Kaluzienski, L. J. 11-Astronomy
HD-SC/Opp, A. G.

NGR 05-003-553 University of California - Berkeley 1547
High energy primary cosmic radiation measured by superconducting magnetic spectrometer
Period Obligations
05/10/73-06/30/81 FY80: TOTAL: \$1,850,164
Prin Invest NASA Tech Officer CASE Category
Buffington, A. HD-SC/Kaluzienski, L. J. 11-Astronomy

NGR 05-003-578 University of California - Berkeley 1548
Theoretical X-ray and gamma-ray astronomy
Period Obligations
08/01/73-08/31/81 FY80: \$77,933 TOTAL: \$268,773
Prin Invest NASA Tech Officer CASE Category
Silk, J. I. HD-SC/Weiler, E. J. 11-Astronomy
HD-SC/Roman, N. G.

NSG 1637 University of California - Berkeley 1549
Integrated-optics cadmium/telluride electro-optic modulator for the 10 um region
Period Obligations
08/01/79-09/30/81 FY80: \$63,320 TOTAL: \$103,320
Prin Invest NASA Tech Officer CASE Category
Chiao, R. Y. LARC/Sachse, G. W. 13-Physics

NSG 3028 University of California - Berkeley 1550
Techniques for stabilization of lean combustion systems
Period Obligations
07/01/74-02/01/79 FY80: TOTAL: \$337,152
Prin Invest NASA Tech Officer CASE Category
Daily, J. W. LERC/Marek, C. J. 46-Mech Engr
Oppenheim, A. K. LERC/Diehl, L. A.
Sawyer, R. F.

NSG 3227 University of California - Berkeley 1551
Study of the mechanism of flashback
Period Obligations
10/01/78-10/01/81 FY80: TOTAL: \$122,445
Prin Invest NASA Tech Officer CASE Category
Oppenheim, A. K. LERC/Marek, C. J. 41-Aero Engr

NSG 5256 University of California - Berkeley 1552
Water quality mapping and location of entrapment zone in San Francisco Bay delta
Period Obligations
03/15/78-08/14/79 FY80: TOTAL: \$20,000
Prin Invest NASA Tech Officer CASE Category
Colwell, R. N. GSFC/Kim, H. H. 33-Oceanography
Knight, A. W.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NSG 5292 University of California - Berkeley **1553**
Simultaneous X-ray and optical observations
Period *Obligations*
08/01/78-07/31/79 FY80: TOTAL: \$9,500
Prin Invest NASA Tech Officer CASE Category
Bowyer, S. GSFC/Kupperian, J. E., Jr. 11-Astronomy

NSG 5360 University of California - Berkeley **1554**
Ultraviolet observations of stars: A cosmological comparison
Period *Obligations*
06/01/79-05/31/80 FY80: TOTAL: \$4,267
Prin Invest NASA Tech Officer CASE Category
Spinrad, H. GSFC/Bogges, A. 11-Astronomy

NSG 7127 University of California - Berkeley **1555**
Map lunar surface remanent magnetic fields and to develop the theory of solar winds cavity
Period *Obligations*
03/25/75-02/28/81 FY80: \$63,682 TOTAL: \$310,295
Prin Invest NASA Tech Officer CASE Category
Anderson, K. A. HD-SL/Quaide, W. L. 39-Env Sci, NEC
HD-SL/French, B. E.

NSG 7152 University of California - Berkeley **1556**
Studies of the solar system objects with the new hat creek millimeter wave length radio interferometer
Period *Obligations*
07/01/75-10/31/80 FY80: \$32,005 TOTAL: \$173,138
Prin Invest NASA Tech Officer CASE Category
Welch, W. J. HD-SL/Brunk, W. F. 11-Astronomy
HD-SL/Quaide, W. L.

NSG 7205 University of California - Berkeley **1557**
Far infrared all-sky survey
Period *Obligations*
02/01/76-10/31/80 FY80: TOTAL: \$127,500
Prin Invest NASA Tech Officer CASE Category
Richards, P. L. HD-SC/Bogges, N. W. 11-Astronomy
HD-SC/Weiler, E. J.

NSG 7220 University of California - Berkeley **1558**
Remote sensing to selected problems within the state of California
Period *Obligations*
05/01/76-04/30/83 FY80: \$250,000 TOTAL: \$1,090,000
Prin Invest NASA Tech Officer CASE Category
Colwell, R. N. HD-ET/Vitale, J. A. 39-Env Sci, NEC

NSG 7262 University of California - Berkeley **1559**
Primate hemodynamics and metabolism under conditions of weightlessness
Period *Obligations*
07/01/76-09/30/80 FY80: \$60,000 TOTAL: \$272,641
Prin Invest NASA Tech Officer CASE Category
Pace, N. HD-SB/Halstead, T. W. 51-Biological Sci

NSG 7336 University of California - Berkeley **1560**
Gravity, body mass, and composition and metabolic rate
Period *Obligations*
12/01/76-11/30/80 FY80: \$55,000 TOTAL: \$205,000
Prin Invest NASA Tech Officer CASE Category
Pace, N. HD-SB/Halstead, T. W. 51-Biological Sci

NSG 7401 University of California - Berkeley **1561**
Theoretical study of equatorial F region irregularities
Period *Obligations*
11/01/77-10/31/80 FY80: \$55,000 TOTAL: \$104,874
Prin Invest NASA Tech Officer CASE Category
Hudson, M. R. HD-ST/Schmerling, E. R. 19-Phys Sci, NEC

NSG 7455 University of California - Berkeley **1562**
Cosmic microwave background isotropy research
Period *Obligations*
04/15/78-10/31/79 FY80: TOTAL: \$29,992
Prin Invest NASA Tech Officer CASE Category
Smoot, G. F. HD-SC/Bogges, N. W. 11-Astronomy
HD-SC/Roman, N. G.

NSG 7522 University of California - Berkeley **1563**
Social issues and implications of remote sensing applications: Paradigms of technology transfer
Period *Obligations*
01/01/79-10/31/80 FY80: \$140,000 TOTAL: \$268,125
Prin Invest NASA Tech Officer CASE Category
Colwell, R. N. HD-ET/Tuyahov, A. J. 79-Soc Sci, NEC
Hoos, I. R. HD-ET/Weinstein, R. H.

NSG 7527 University of California - Berkeley **1564**
A balloon-borne high resolution X- and gamma-ray spectrometer
Period *Obligations*
02/01/79-10/31/80 FY80: \$28,837 TOTAL: \$52,837
Prin Invest NASA Tech Officer CASE Category
Lin, R. P. HD-ST/Bohlin, J. D. 13-Physics

NSG 7592 University of California - Berkeley **1565**
A balloon-borne high resolution X- and gamma-ray spectrometer
Period *Obligations*
05/01/79-01/31/81 FY80: \$19,989 TOTAL: \$43,989
Prin Invest NASA Tech Officer CASE Category
Lin, R. P. HD-SC/Kaluzienski, L. J. 11-Astronomy
Anderson, K. A. HD-SC/Opp, A. G.

NAS 2-10258 University of California - Davis **1566**
Study of conductivity in modified graphite
Period *Obligations*
07/16/79-08/30/80 FY80: TOTAL: \$19,071
Prin Invest NASA Tech Officer CASE Category
Fong, C. Y. ARC/Hansen, C. F. 13-Physics

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAS 5-22964 University of California - Davis 1567
Nimbus-G experiment team support for Earth radiation budget
Period Obligations
02/18/76-08/31/79 FY80: TOTAL: \$62,187
Prin Invest NASA Tech Officer CASE Category
Coulson, K. L. GSFC/Nelson, D. 13-Physics

NCA 2-180901 University of California - Davis 1568
Remote measurement of crop moisture stress utilizing the stress degree day concept
Period Obligations
10/01/78-09/30/80 FY80: TOTAL: \$15,000
Prin Invest NASA Tech Officer CASE Category
Hatfield, J. L. ARC/Millard, J. P. 31-Atmos Sci

NCA 2-180903 University of California - Davis 1569
Wind-tunnel determination of particle to fluid speed for saltating flow
Period Obligations
06/15/79-06/15/81 FY80: \$18,500 TOTAL: \$37,000
Prin Invest NASA Tech Officer CASE Category
White, B. R. ARC/Pollack, J. B. 46-Mech Engr

NCA 2-180905 University of California - Davis 1570
Development of a special purpose system for assessment of 24 hour biorhythm desynchronization and its effects on performance and psychological state
Period Obligations
07/01/79-06/30/81 FY80: TOTAL: \$28,800
Prin Invest NASA Tech Officer CASE Category
Chapman, L. F. ARC/Winget, C. M. 51-Biological Sci

NCC 2-20 University of California - Davis 1571
Improvement in mechanical properties of low conductivity carbon fibers by impregnating with polymers and metals
Period Obligations
09/01/79-12/31/80 FY80: \$36,000 TOTAL: \$51,000
Prin Invest NASA Tech Officer CASE Category
Needles, H. L. ARC/Fish, R. H. 12-Chemistry
Varma, D. S. ARC/Cagliostro, D. E.

NCC 2-48 University of California - Davis 1572
An analysis of anticipated psychosocial requirements for future space flight
Period Obligations
11/01/79-04/20/81 FY80 \$5,965 TOTAL: \$5,965
Prin Invest NASA Tech Officer CASE Category
Harrison, A. A. ARC/Conners, M. 61-Biol Aspects

NAS 2256 University of California - Davis 1573
Turbulent transport modeling of separating and reattaching shear flow
Period Obligations
10/01/77-12/31/80 FY80: \$6,000 TOTAL: \$123,540
Prin Invest NASA Tech Officer CASE Category
Lauder, B. ARC/Marvin, J. G. 41-Aero Engr
Sindir, M.

NSG 2383 University of California - Davis 1574
Correlation of theoretical prediction with tunnel data and flight data on the Advanced Technology Light Twin engine (ATLIT) airplane niobium
Period Obligations
03/01/79-02/28/81 FY80: \$1,950 TOTAL: \$3,915
Prin Invest NASA Tech Officer CASE Category
Fong, C. Y. ARC/Cooper, D. M. 13-Physics

NSG 2406 University of California - Davis 1575
Matching crop varieties to efficient use of nitrates ammonium and urea for the Controlled Ecology Life Support System (CELSS)
Period Obligations
08/01/79-10/31/80 FY80: \$7,832 TOTAL: \$48,563
Prin Invest NASA Tech Officer CASE Category
Huffaker, R. C. ARC/Zill, L. P. 51-Biological Sci
Ramm, D. W.
Qualset, C. O.

NSG 5092 University of California - Davis 1576
Use of remote data in hydrologic engineering models
Period Obligations
02/01/76-09/30/80 FY80: TOTAL: \$180,000
Prin Invest NASA Tech Officer CASE Category
Algazi, V. R. GSFC/Rango, A. 39-Env Sci, NEC
GSFC/Salomonson, V. V.

NSG 7493 University of California - Davis 1577
Avian embryonic development in hyperdynamic environments
Period Obligations
10/01/78-09/30/80 FY80: \$46,000 TOTAL: \$92,000
Prin Invest NASA Tech Officer CASE Category
Smith, A. H. HD-SB/Halstead, T. W. 51-Biological Sci
Abbott, U. K. HD-SB/Geib, D. S.

NAGW 93 University of California - Irvine 1578
Research in solar plasma theory
Period Obligations
06/01/80-05/31/81 FY80: \$76,000 TOTAL: \$76,000
Prin Invest NASA Tech Officer CASE Category
Vanhoven, G. HD-ST/Birmingham, T. J. 13-Physics
HD-ST/Newton, G. P.

NAS 2-10522 University of California - Irvine 1579
Life science experiment arc 781-127, effect of zero-gravity on biochemical and metabolic properties of skeletal muscle
Period Obligations
01/15/80-12/31/80 FY80 \$1,867 TOTAL: \$1,867
Prin Invest NASA Tech Officer CASE Category
Baldwin, K. M. ARC/Rasmussen, D. N. 51-Biological Sci
ARC/Sebesta, P. D.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAS 3-21963 University of California - Irvine **1580**
Development and evaluation of an ion-beam sputter-ventilated
ventricular catheter
Period *Obligations*
09/27/79-06/13/81 **FY80:** **TOTAL: \$45,463**
Prin Invest *NASA Tech Officer* *CASE Category*
Foltz, E. L. LERC/Weigand, A. J. 56-Medical Sciences

NGR 05-041-012 University of California - Irvine **1581**
Diagnosis of preclinical viral illness and prophylaxis against viral
disease
Period *Obligations*
07/13/71-11/30/80 **FY80: \$35,000** **TOTAL: \$314,342**
Prin Invest *NASA Tech Officer* *CASE Category*
Tilles, J. G. ARC/Mandel, A. D. 56-Medical Sciences

NSG 7208 University of California - Irvine **1582**
gas phase reactions of chlorine and fluorine compound of interest
for stratospheric chemistry
Period *Obligations*
01/01/76-09/30/80 **FY80 \$84,525** **TOTAL: \$416,636**
Prin Invest *NASA Tech Officer* *CASE Category*
Molina, M. J. HD-EB/Seals, R. K., Jr. 31-Astronomy
HD-EB/Tilford, S. G.

NSG 7375 University of California - Irvine **1583**
Coronal plasma structures
Period *Obligations*
06/01/77-10/31/80 **FY80: \$49,958** **TOTAL: \$124,958**
Prin Invest *NASA Tech Officer* *CASE Category*
VanHoven, G. HD-ST/Chipman, F. 13-Physics
HD-ST/Timothy, A. F.

NSG 7472 University of California - Irvine **1584**
Research on some properties of nearly perfect crystals at very
low temperatures
Period *Obligations*
07/01/78-06/30/80 **FY80:** **TOTAL: \$23,397**
Prin Invest *NASA Tech Officer* *CASE Category*
Wallis, R. F. HD-RT/Whiting, F. E. 13-Physics

NAG 2-41 University of California - Los Angeles **1585**
Graduate student researchers program simulation
Period *Obligations*
05/01/80-04/30/81 **FY80: \$17,385** **TOTAL: \$17,385**
Prin Invest *NASA Tech Officer* *CASE Category*
Karplus, W. J. ARC/Raby, J. S. 22-Computer Science
ARC/Jacoby, F. A.

NAG 3-69 University of California - Los Angeles **1586**
Selection and testing of diaphragm materials for high temperature
pressure transducers
Period *Obligations*
05/15/80-05/14/81 **FY80: \$60,280** **TOTAL: \$60,280**
Prin Invest *NASA Tech Officer* *CASE Category*
MacKenzie, J. D. LERC/Barranger, J. P. 47-Materials Engr

NAG 4-3 University of California - Los Angeles **1587**
Recent studies in cloud physics and their relevance for a better
understanding of aircraft icing. Work includes literature
survey, calculation of droplet spray and deposition processes
Period *Obligations*
04/01/80-10/31/80 **FY80: \$10,000** **TOTAL: \$10,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Pruppacher, H. R. DFRC/Ehernberger, L. J. 31-Atmos Sci

NAG 5-112 University of California - Los Angeles **1588**
Observations of selected astronomical emission lines
Period *Obligations*
10/01/80-09/30/81 **FY80: \$3,574** **TOTAL: \$3,574**
Prin Invest *NASA Tech Officer* *CASE Category*
Plavec, M. J. GSFC/Corrigan, J. P. 11-Astronomy

NAG 5-116 University of California - Los Angeles **1589**
Observations of interstellar cloud densities and detection of
interstellar neutral chlorine
Period *Obligations*
10/01/80-09/30/81 **FY80: \$3,000** **TOTAL: \$3,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Jura, M. GSFC/Corrigan, J. P. 11-Astronomy

NAGW 41 University of California - Los Angeles **1590**
High pressure cosmochemistry applied to major planetary
interiors
Period *Obligations*
03/01/80-02/28/81 **FY80: \$21,441** **TOTAL: \$21,441**
Prin Invest *NASA Tech Officer* *CASE Category*
Stevenson, D. J. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NAGW 74 University of California - Los Angeles **1591**
A three dimensional model of bow shock location and motion
Period *Obligations*
07/01/80-06/30/81 **FY80: \$18,856** **TOTAL: \$18,856**
Prin Invest *NASA Tech Officer* *CASE Category*
Holzer, R. F. HD-ST/Hedin, A. E. 19-Phys Sci, NEC
HD-ST/Schmerling, F. R.

NAGW 78 University of California - Los Angeles **1592**
Space plasma physics theory and simulation
Period *Obligations*
07/01/80-06/30/81 **FY80: \$171,000** **TOTAL: \$171,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Kennel, C. F. HD-ST/Birmingham, T. J. 13-Physics
HD-ST/Newton, G. P.

NAGW 80 University of California - Los Angeles **1593**
Theoretical studies of extragalactic grains
Period *Obligations*
10/01/80-09/30/81 **FY80: \$33,377** **TOTAL: \$33,377**
Prin Invest *NASA Tech Officer* *CASE Category*
Jura, M. HD-SC/Weiler, E. J. 11-Astronomy
Ulrich, R. K. HD-SC/Bogges, N. W.

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NAGW 87 **University of California - Los Angeles** **1594**
Theoretical studies of the plasma environments of Jupiter and Saturn, their magnetospheres and their satellites

Period	Obligations	
07/01/80-06/30/81	FY80: \$68,484	TOTAL: \$68,484
Prin Invest	NASA Tech Officer	CASE Category
Siscoe, G. L.	HD-SL/Murphy, R. E.	31-Atmos Sci
	HD-SL/Brunk, W. E.	

NAS 2-9128 **University of California - Los Angeles** **1595**
Interdisciplinary scientist, Pioneer Venus program

Period	Obligations	
02/09/76-12/31/80	FY80: \$22,900	TOTAL: \$24,659
Prin Invest	NASA Tech Officer	CASE Category
Kaula, W. H.	ARC/Fimmel, R. O.	11-Astronomy
	ARC/Dyer, J.	

NAS 2-9131 **University of California - Los Angeles** **1596**
Interdisciplinary scientist, Pioneer Venus program

Period	Obligations	
02/09/76-10/01/81	FY80:	TOTAL: \$35,642
Prin Invest	NASA Tech Officer	CASE Category
Schubert, G.	ARC/Fimmel, R. O.	11-Astronomy
	ARC/Dyer, J.	

NAS 2-9491 **University of California - Los Angeles** **1597**
Pioneer Venus data analysis of magnetic fields experiment

Period	Obligations	
08/01/77-01/31/81	FY80: \$275,824	TOTAL: \$579,973
Prin Invest	NASA Tech Officer	CASE Category
Russell, C. T.	ARC/Fimmel, R. O.	31-Atmos Sci
	ARC/Dyer, J.	

NAS 5-20064 **University of California - Los Angeles** **1598**
Magnetic field investigation for ISEE mother/ daughter spacecraft

Period	Obligations	
06/05/74-12/30/81	FY80: \$15,200	TOTAL: \$1,030,108
Prin Invest	NASA Tech Officer	CASE Category
Russell, C. T.	GSFC/Kowalski, G. E.	13-Physics

NAS 5-25039 **University of California - Los Angeles** **1599**
Theory formulation and analysis support for the Dynamics Explorer (DE) project

Period	Obligations	
08/08/78-02/28/83	FY80:	TOTAL: \$10,000
Prin Invest	NASA Tech Officer	CASE Category
Coroniti, F. V.	GSFC/Hoffman, R. A.	13-Physics

NAS 5-25657 **University of California - Los Angeles** **1600**
Space telescope/high resolution spectrograph interstellar medium studies

Period	Obligations	
04/25/79-01/31/82	FY80: \$9,060	TOTAL: \$17,000
Prin Invest	NASA Tech Officer	CASE Category
Jura, M.	GSFC/Liberatore, F. J.	11-Astronomy

NAS 5-25772 **University of California - Los Angeles** **1601**
International Sun-Earth Explorer A and B data reduction and analysis for the magnetic field investigation

Period	Obligations	
11/01/79-10/31/80	FY80: \$336,293	TOTAL: \$336,293
Prin Invest	NASA Tech Officer	CASE Category
Russell, C. T.	GSFC/Corrigan, J. P.	11-Astronomy

NAS 8-32571 **University of California - Los Angeles** **1602**
Tethered sub-satellite study

Period	Obligations	
05/02/77-01/14/79	FY80:	TOTAL: \$35,000
Prin Invest	NASA Tech Officer	CASE Category
Coleman, P. J.	MSFC/Page, M. A.	32-Geological Sci
	MSFC/Siebel, M. P.	

NAS 8-33115 **University of California - Los Angeles** **1603**
Experiment for materials processing in space entitled ultra pure metals preparation in space

Period	Obligations	
08/07/78-12/07/79	FY80:	TOTAL: \$67,118
Prin Invest	NASA Tech Officer	CASE Category
Bunshah, P. F.	MSFC/Williams, J. R.	47-Materials Engr
	MSFC/Oran, W. A.	

NAS 8-33353 **University of California - Los Angeles** **1604**
X-ray imagery of nearby GSO 0241 - 622

Period	Obligations	
06/05/79-06/04/80	FY80:	TOTAL: \$7,990
Prin Invest	NASA Tech Officer	CASE Category
Margon, B. H.	MSFC/Jones, J. B., Jr.	11-Astronomy

NAS 9-16047 **University of California - Los Angeles** **1605**
Life science flight experiment. Pulmonary blood flow

Period	Obligations	
01/17/80-05/31/81	FY80: \$10,000	TOTAL: \$10,000
Prin Invest	NASA Tech Officer	CASE Category
Wiberg, D. M.	JSC/French, B. O.	59-Life Sci, NEC

NASW 3416 **University of California - Los Angeles** **1606**
Support of the Conference on Mathematical Problems of the Thermal and Dynamic State of the Earth

Period	Obligations	
06/15/80-09/30/80	FY80: \$13,999	TOTAL: \$13,999
Prin Invest	NASA Tech Officer	CASE Category
Knopoff, L.	HD-ER/Murphy, J. P.	32-Geological Sci
Jones, G. M.		

NCA 2-390001 **University of California - Los Angeles** **1607**
Characterization of esterpeptidases in rat tissues by gel electrophoresis

Period	Obligations	
10/01/79-09/30/81	FY80: \$22,942	TOTAL: \$22,942
Prin Invest	NASA Tech Officer	CASE Category
Parlow, A.	ARC/Ellis, S.	51-Biological Sci

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCA 2-390002 University of California - Los Angeles 1608
Numerical solution of transonic flow problems

Period	Obligations
10/01/79-10/31/80	FY80: \$15,000 TOTAL: \$15,000
<i>Prin Invest</i>	NASA Tech Officer CASE Category
Osher, S.	ARC/Bailhaus, W. F. 21-Mathematics
Engquist, B.	ARC/Holst, T. L.

NCA 2-390903 University of California - Los Angeles 1609
A study of dry-chemical fire-extinguishing mechanisms

Period	Obligations
09/01/79-10/31/80	FY80: TOTAL: \$29,579
<i>Prin Invest</i>	NASA Tech Officer CASE Category
Knuth, E. L.	ARC/Altman, R. L. 12-Chemistry

NCC 2-7 University of California - Los Angeles 1610
Composite class fibers with ultra-high modulus

Period	Obligations
06/01/79-06/01/80	FY80: TOTAL: \$26,000
<i>Prin Invest</i>	NASA Tech Officer CASE Category
MacKenzie, J. D.	ARC/Ricciello, S. R. 47-Materials Engr
Wakaki, J.	ARC/Goldstein, H.

NCC 2-64 University of California - Los Angeles 1611
Vapor-liquid phase separator

Period	Obligations
03/01/80-10/31/80	FY80: \$22,236 TOTAL: \$22,236
<i>Prin Invest</i>	NASA Tech Officer CASE Category
Frederking, T. H.	ARC/Vorreit, J. W. 46-Mech Engr
	ARC/Pappas, C. C.

NGL 05-007-002 University of California - Los Angeles 1612
Theoretical evaluation of the internal structures and atmospheres of planets and the Moon

Period	Obligations
01/01/82-12/31/80	FY80: \$66,213 TOTAL: \$934,290
<i>Prin Invest</i>	NASA Tech Officer CASE Category
Kaula, W. M.	HD-SL/Quaide, W. L. 32-Geological Sci
	HD-SL/French, B. E.

NGL 05-007-004 University of California - Los Angeles 1613
Theoretical and experimental investigations of particles and fields in space, including construction of prototype instrumentation

Period	Obligations
03/01/82-10/01/81	FY80: \$102,000 TOTAL: \$2,887,554
<i>Prin Invest</i>	NASA Tech Officer CASE Category
Coleman, P. J.	HD-ST/Hedin, A. E. 39-Env Sci, NEC
	HD-ST/Schmerling, E. R.

NGL 05-007-190 University of California - Los Angeles 1614
Theoretical space plasma physics

Period	Obligations
06/27/68-09/30/81	FY80: \$96,000 TOTAL: \$689,307
<i>Prin Invest</i>	NASA Tech Officer CASE Category
Kennel, C. F.	HD-ST/Glaser, H. 19-Phys Sci, NEC
	HD-ST/Schmerling, E. R.

NGL 05-007-367 University of California - Los Angeles 1615
Lunar sample analysis

Period	Obligations
06/30/72-01/31/81	FY80: \$75,000 TOTAL: \$653,570
<i>Prin Invest</i>	NASA Tech Officer CASE Category
Wasson, J. T.	JSC/Harris, J. W. 12-Chemistry

NGR 05-007-221 University of California - Los Angeles 1616
Nature and changes of organic matter in deep ocean cores

Period	Obligations
08/08/69-12/31/80	FY80: \$69,550 TOTAL: \$656,012
<i>Prin Invest</i>	NASA Tech Officer CASE Category
Kaplan, I. R.	HD-SB/Devincenzi, D. L. 32-Geological Sci

NGR 05-007-276 University of California - Los Angeles 1617
Data analysis on the OGO-3 and OGO-4 search coil magnetometers

Period	Obligations
04/03/70-04/30/79	FY80: TOTAL: \$180,000
<i>Prin Invest</i>	NASA Tech Officer CASE Category
Holzer, R. E.	HD-ST/Taylor, W. W. 13-Physics

NGR 05-007-289 University of California - Los Angeles 1618
Lunar sample analysis

Period	Obligations
12/29/70-01/31/81	FY80: \$50,810 TOTAL: \$712,709
<i>Prin Invest</i>	NASA Tech Officer CASE Category
Kaplan, I. R.	JSC/Harris, J. W. 13-Physics

NGR 05-007-317 University of California - Los Angeles 1619
Photogeologic interpretation of Mariner Mars 1969 imagery

Period	Obligations
03/09/71-03/14/81	FY80: \$17,923 TOTAL: \$161,800
<i>Prin Invest</i>	NASA Tech Officer CASE Category
Schubert, G.	HD-SL/Boyce, J. M. 32-Geological Sci
	HD-SL/Quaide, W. L.

NGR 05-007-328 University of California - Los Angeles 1620
Numerical modeling of the global atmosphere and the world oceans

Period	Obligations
08/15/71-11/30/80	FY80: \$55,000 TOTAL: \$495,649
<i>Prin Invest</i>	NASA Tech Officer CASE Category
Suarez, J.	GSFC/Halem, M. 31-Atmos Sci

NGR 05-007-329 University of California - Los Angeles 1621
Elemental variations in genetically related meteorites

Period	Obligations
04/27/71-01/31/81	FY80: \$88,000 TOTAL: \$514,995
<i>Prin Invest</i>	NASA Tech Officer CASE Category
Wasson, J. T.	HD-SL/French, B. M. 32-Geological Sci
	HD-SL/Quaide, W. L.

NASA'S UNIVERSITY PROGRAM **CALIFORNIA (Continued)**

NGR 05-007-351 University of California - Los Angeles 1622
Correlative studies of Apollo 15 and 16 satellite magnetometer data with the Explorer 35 and lunar surface magnetometer data

Period	Obligations	
05/25/72-01/31/81	FY80: \$51,559	TOTAL: \$756,633
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coleman, P. J.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. E.	

NGR 05-007-447 University of California - Los Angeles 1623
Paleobiologic studies of the antiquity and precambrian evolution of life

Period	Obligations	
04/10/73-05/31/81	FY80: \$52,000	TOTAL: \$266,098
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schopf, J. W.	HD-SB/Devincenzi, D. L.	32-Geological Sci

NGR 05-007-418 University of California - Los Angeles 1624
Utricular influences on visual motor control research

Period	Obligations	
09/01/73-08/31/81	FY80: \$25,000	TOTAL: \$161,023
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Markham, C. H.	ARC/Daunton, N. G.	54-Env Biology

NSG 1490 University of California - Los Angeles 1625
Fundamental studies of methods for structural synthesis

Period	Obligations	
02/01/80-01/31/83	FY80: \$79,283	TOTAL: \$266,699
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schmit, L. A., Jr	LARC/Sobieski, J.	49-Engr, NEC

NSG 1578 University of California - Los Angeles 1626
Response studies of rotors and rotor blades with applications to aeroelastic tailoring

Period	Obligations	
12/01/78-11/30/80	FY80: \$65,247	TOTAL: \$124,029
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Friedmann, P	LARC/Hammond, C. E.	41-Aero Engr

NSG 2290 University of California - Los Angeles 1627
Research program in jet/surface interactions

Period	Obligations	
11/01/77-10/31/80	FY80	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Meecham, W. C.	ARC/Ahtye, W.	41-Aero Engr
	ARC/Hickey, D. H.	

NSG 3116 University of California - Los Angeles 1628
Forecast of future aviation fuels

Period	Obligations	
08/01/76-10/01/80	FY80: \$10,834	TOTAL: \$308,660
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liu, C. Y.	LERC/Friedman, R.	41-Aero Engr

NSG 3153 University of California - Los Angeles 1629
Cryo-coolant helium super conductor interaction

Period	Obligations	
06/01/77-01/15/80	FY80: \$2,272	TOTAL: \$45,272
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Frederking, T. H.	LERC/Burkhart, J. A.	46-Mech Engr
	LERC/Terdan, F. F.	

NSG 3236 University of California - Los Angeles 1630
Investigations of the interaction between a grazing flow over a Helmholtz resonator orifice and the acoustically induced velocity in it

Period	Obligations	
11/14/78-11/19/81	FY80: \$33,000	TOTAL: \$93,352
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Charwat, A. F.	LERC/Rice, E. J.	13-Physics
	LERC/Baumeister, K. J.	

NSG 4015 University of California - Los Angeles 1631
Modeling, identification and control with applications to flight vehicles

Period	Obligations	
02/01/78-01/31/83	FY80: \$63,449	TOTAL: \$190,750
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Balakrishnan, A. V.	DFRC/Edwards, J. W.	41-Aero Engr
	DFRC/Hiff, K. W.	

NSG 4024 University of California - Los Angeles 1632
Models for numerical simulation of gravity waves and clear air turbulence formation

Period	Obligations	
05/01/79-04/30/81	FY80: \$40,586	TOTAL: \$90,586
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wurtele, M. G.	DFRC/Ehernberger, L. J.	31-Atmos Sci
Sharman, R.		

NSG 5169 University of California - Los Angeles 1633
Physical conditions, abundances and chemistry in diffuse interstellar clouds

Period	Obligations	
03/14/77-11/13/80	FY80:	TOTAL: \$10,602
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jura, M.	GSFC/Kupperian, J. F., Jr	11-Astronomy

NSG 5190 University of California - Los Angeles 1634
Energetic particle precipitation effects on stratospheric and mesospheric composition and dynamics

Period	Obligations	
07/18/77-08/31/80	FY80: \$5,000	TOTAL: \$53,185
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Thorne, R. M.	GSFC/Reed, E. I.	31-Atmos Sci
Siscoe, G. L.		
Venkateswaran, S. V.		

NASA'S UNIVERSITY PROGRAM **CALIFORNIA (Continued)**

NSG 5263 **University of California - Los Angeles** **1635**
Earth dynamics analyses
Period *Obligations*
03/15/78-04/14/81 FY80: \$69,594 TOTAL: \$198,594
Prin Invest *NASA Tech Officer* *CASE Category*
Kaula, W. M. GSFC/Holweck, E. C. 32-Geological Sci
Shubert, G. GSFC/Smith, D. F.

NSG 5272 **University of California - Los Angeles** **1636**
Problems of mass loss and mass transfer in close binary systems
Period *Obligations*
05/01/78-04/30/81 FY80: \$16,000 TOTAL: \$31,999
Prin Invest *NASA Tech Officer* *CASE Category*
Plavec, M. J. GSFC/Boggess, A. 11-Astronomy
Keyes, C. K.

NSG 5351 **University of California - Los Angeles** **1637**
Investigation of the wayside boundary region plasma and magnetic field
Period *Obligations*
05/01/77-10/31/81 FY80: \$29,952 TOTAL: \$60,523
Prin Invest *NASA Tech Officer* *CASE Category*
Siscoe, G. L. GSFC/Corrigan, J. P. 32-Geological Sci

NSG 5358 **University of California - Los Angeles** **1638**
Ultraviolet observations of high excitation planetary nebulae
Period *Obligations*
05/09/79-05/08/81 FY80: \$8,134 TOTAL: \$14,234
Prin Invest *NASA Tech Officer* *CASE Category*
Aller, L. H. GSFC/Boggess, A. 11-Astronomy

NSG 5377 **University of California - Los Angeles** **1639**
Observations of interstellar zinc
Period *Obligations*
06/01/79-05/31/81 FY80 TOTAL: \$6,100
Prin Invest *NASA Tech Officer* *CASE Category*
Jura, M. GSFC/Boggess, A. 11-Astronomy

NSG 7052 **University of California - Los Angeles** **1640**
Shock processes in terrestrial analogs of porous lunar and meteoritic materials
Period *Obligations*
04/01/74-07/31/80 FY80: \$3,469 TOTAL: \$140,955
Prin Invest *NASA Tech Officer* *CASE Category*
Christie, J. M. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NSG 7164 **University of California - Los Angeles** **1641**
Dynamical studies of the Venus atmosphere
Period *Obligations*
09/01/75-08/31/81 FY80: \$67,782 TOTAL: \$156,033
Prin Invest *NASA Tech Officer* *CASE Category*
Schubert, G. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. F.

NSG 7239 **University of California - Los Angeles** **1642**
Possible correlations between the interplanetary magnetic field and zodiacal light polarization vectors
Period *Obligations*
06/01/76-06/30/81 FY80: TOTAL: \$15,275
Prin Invest *NASA Tech Officer* *CASE Category*
Allen, L. H. HD-SL/Murphy, R. E. 31-Atmos Sci

NSG 7282 **University of California - Los Angeles** **1643**
Experimental study of Martian carbonate formation
Period *Obligations*
10/01/76-09/30/78 FY80: TOTAL: \$41,276
Prin Invest *NASA Tech Officer* *CASE Category*
Kieffer, H. H. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/Boyce, J. M.

NSG 7295 **University of California - Los Angeles** **1644**
Analysis of data from the helium vector magnetometers on the Pioneers 10 and 11 spacecraft
Period *Obligations*
10/01/76-09/30/80 FY80: \$90,796 TOTAL: \$375,796
Prin Invest *NASA Tech Officer* *CASE Category*
Coleman, P. J. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-ST/Schmerling, F. R.

NSG 7315 **University of California - Los Angeles** **1645**
Theoretical studies of Moon plasma interactions
Period *Obligations*
02/01/77-01/31/81 FY80: \$64,552 TOTAL: \$187,137
Prin Invest *NASA Tech Officer* *CASE Category*
Schubert, G. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NSG 7335 **University of California - Los Angeles** **1646**
Rare earths in inclusions from different classes of carbonaceous chondrites
Period *Obligations*
03/01/77-02/28/80 FY80 TOTAL: \$75,295
Prin Invest *NASA Tech Officer* *CASE Category*
Boynton, W. V. HD-SL/French, B. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NSG 7341 **University of California - Los Angeles** **1647**
Physics of astrophysical plasmas
Period *Obligations*
04/01/77-08/31/81 FY80: \$45,000 TOTAL: \$118,437
Prin Invest *NASA Tech Officer* *CASE Category*
Kennel, C. F. HD-SC/Kaluzański, I. J. 11-Astronomy
HD-SC/Holt, S. S.

NSG 7407 **University of California - Los Angeles** **1648**
A three dimensional observational study of the solar five-minute oscillation
Period *Obligations*
10/01/77-03/31/81 FY80: TOTAL: \$106,000
Prin Invest *NASA Tech Officer* *CASE Category*
Ulrich, R. K. HD-ST/Bohlin, J. D. 13 Physics

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NSG 7484 University of California - Los Angeles 1649
Planetary dynamos
Period *Obligations*
08/01/78-01/31/82 FY80: \$22,200 TOTAL: \$55,332
Prin Invest *NASA Tech Officer* *CASE Category*
Busse, F. W. HD-SL/Quaide, W. L. 32-Geological Sci

NSG 7489 University of California - Los Angeles 1650
Paleobiologic studies of Archean evolution
Period *Obligations*
06/01/79-05/31/81 FY80: \$20,000 TOTAL: \$175,476
Prin Invest *NASA Tech Officer* *CASE Category*
Schopf, J. W. HD-ST/Schmerling, F. R. 32-Geological Sci

NSG 7581 University of California - Los Angeles 1651
Thermal behavior of the Martian north polar region during fall, winter and spring
Period *Obligations*
03/01/79-09/30/79 FY80 \$1,527 TOTAL \$3,606
Prin Invest *NASA Tech Officer* *CASE Category*
Kieffer, H. H. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/Dwornik, S. F.

NSG 7582 University of California - Los Angeles 1652
Viking orbiter combined infrared studies of Mars atmosphere and surface
Period *Obligations*
03/01/79-09/30/79 FY80 \$667 TOTAL \$6,932
Prin Invest *NASA Tech Officer* *CASE Category*
Kieffer, H. H. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/Dwornik, S. F.

NSG 7583 University of California - Los Angeles 1653
Thermal behavior of Martian regional and local features
Period *Obligations*
03/01/79-09/30/80 FY80 \$90,486 TOTAL \$132,784
Prin Invest *NASA Tech Officer* *CASE Category*
Shubert, G. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/Boyce, J. M.

NSG 7594 University of California - Los Angeles 1654
Thermal behavior of the Mars atmosphere
Period *Obligations*
03/01/79-09/30/79 FY80 TOTAL \$2,457
Prin Invest *NASA Tech Officer* *CASE Category*
Martin, T. Z. HD-SL/Murphy, R. F. 31-Atmos Sci
HD-SL/Brunk, W. F.

NSG 7616 University of California - Los Angeles 1655
Beam-plasma interactions in a large laboratory plasma
Period *Obligations*
07/01/79-06/30/80 FY80 TOTAL \$50,000
Prin Invest *NASA Tech Officer* *CASE Category*
Stenzel, R. L. HD-ST/Schmerling, F. R. 19-Phys Sci, NEC

NSG 7621 University of California - Los Angeles 1656
Studies of circumstellar and interstellar grains
Period *Obligations*
09/01/79-08/31/80 FY80: TOTAL: \$21,339
Prin Invest *NASA Tech Officer* *CASE Category*
Jura, M. HD-SC/Weiler, E. J. 11-Astronomy
HD-SC/Roman, N. G.

NAS 2-10536 University of California - Riverside 1657
Thermoregulation in primates in the space environment
Period *Obligations*
01/17/80-04/30/81 FY80: \$32,034 TOTAL: \$32,034
Prin Invest *NASA Tech Officer* *CASE Category*
Fuller, C. A. ARC/Ferandin, J. 51-Biological Sci
ARC/Connolly, J.

NSR 05-008-022 University of California - Riverside 1658
Measurement of neutrons from Sun
Period *Obligations*
05/16/69-12/31/80 FY80 \$65,000 TOTAL \$584,669
Prin Invest *NASA Tech Officer* *CASE Category*
White, R. S. HD-SC/Gilman, D. A. 11-Astronomy

NAG 1-77 University of California - San Diego 1659
Scientific and applications investigations of stratospheric trace gases
Period *Obligations*
06/04/80-06/03/81 FY80 \$65,174 TOTAL \$65,174
Prin Invest *NASA Tech Officer* *CASE Category*
Cicerone, R. J. IARC/Sullivan, F. M. 31-Atmos Sci
Crutzen, P. J. IARC/Russell, J. M.

NAG 5-11 University of California - San Diego 1660
Research relative to improvements in benchmark stability for precision tilt measurements of crustal dynamics
Period *Obligations*
02/15/80-02/14/81 FY80 \$40,000 TOTAL \$40,000
Prin Invest *NASA Tech Officer* *CASE Category*
Berger, J. GSFC/Patterson, G. C. 32-Geological Sci
Wyatt, F. GSFC/Carpenter, L. H.

NAG 5-63 University of California - San Diego 1661
A study of extragalactic sources
Period *Obligations*
06/01/80-05/31/81 FY80: \$8,808 TOTAL: \$8,808
Prin Invest *NASA Tech Officer* *CASE Category*
Worrall, D. M. GSFC/Boggess, A. 11-Astronomy
Peterson, I. F.
Bruhweiler, F. C.

NAG 5-105 University of California - San Diego 1662
The nonlinear response in a baroclinic model to stationary forcings
Period *Obligations*
09/15/80-09/14/81 FY80: \$61,500 TOTAL \$61,500
Prin Invest *NASA Tech Officer* *CASE Category*
Roads, J. O. GSFC/Shukla, J. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAG 8-315 University of California - San Diego 1663
X-ray observations of radio bursting quasars NRA0140 and
NRA0530 on the High Energy Astronomical Observatory-B guest
investigator program

Period	Obligations	
02/01/80-01/31/81	FY80: \$9,000	TOTAL: \$9,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Marscher, A. P.	MSFC/Jones, J. B.	11-Astronomy

NAG 8-340 University of California - San Diego 1664
X-ray observations of optical absorption-line quasi-stellar objects
on the High Energy Astronomical Observatory-B guest investigator
program

Period	Obligations	
03/01/80-02/28/81	FY80: \$6,500	TOTAL: \$6,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burbidge, E. M.	MSFC/Jones, J. B.	11-Astronomy

NAG 8-377 University of California - San Diego 1665
IPC observations of 31 selected quasars for determination of
their average 0.15 5000 keV spectrum 1

Period	Obligations	
09/22/80-09/21/81	FY80: \$6,542	TOTAL: \$6,542
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Worrall, D. M.	MSFC/Stone, J. F.	11-Astronomy

NAGW 12 University of California - San Diego 1666
Theoretical work in high energy astrophysics and extragalactic
astronomy

Period	Obligations	
11/01/79-10/31/80	FY80: \$33,347	TOTAL: \$33,347
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Felten, J. E.	HD-SC/Kaluzienski, L. J.	11-Astronomy
Gould, R. J.	HD-SC/Opp, A. G.	

NAGW 20 University of California - San Diego 1667
Mechanism of synthesis of amine, hydroly and dicarboxylic acids
in carbonaceous chondrites

Period	Obligations	
12/01/79-11/30/80	FY80: \$40,000	TOTAL: \$40,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miller, S. L.	HD-SB/Devincenzi, D. L.	32-Geological Sci

NAGW 30 University of California - San Diego 1668
Radioactive transfer effects in quasi-stellar object emission line
clouds

Period	Obligations	
02/01/80-01/31/81	FY80: \$24,902	TOTAL: \$24,902
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Canfield, R. C.	HD-SC/Weiler, E. J.	11-Astronomy
	HD-SC/Boggett, N. W.	

NAGW 45 University of California - San Diego 1669
Measurements of key biogeochemical gases and theoretical studies
in atmospheric chemistry

Period	Obligations	
02/01/80-01/31/81	FY80: \$85,950	TOTAL: \$85,950
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cicerow, R. J.	HD-EB/Toth, R. A.	31-Atmos Sci
	HD-EB/Tilford, S. G.	

NAGW 73 University of California - San Diego 1670
Planetary biology and microbial ecology

Period	Obligations	
04/05/80-01/31/81	FY80: \$65,955	TOTAL: \$65,955
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nealson, K. H.	HD-SB/Devincenzi, D. L.	51-Biological Sci

NAS 5-22375 University of California - San Diego 1671
Hard X-ray imaging system study

Period	Obligations	
05/13/75-02/28/79	FY80:	TOTAL: \$316,757
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tabakoff, W.	GSFC/Stouffer, C. G.	11-Astronomy
Hamed, A.		

NAS 5-24463 University of California - San Diego 1672
Faint object spectrograph for space telescope

Period	Obligations	
09/15/78-02/01/84	FY80: \$6,103,493	TOTAL: \$14,827,486
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Harms, R. J.	GSFC/White, R. A.	11-Astronomy

NAS 5-25054 University of California - San Diego 1673
Development of digiton image tubes

Period	Obligations	
05/01/78-10/31/80	FY80: \$44,907	TOTAL: \$439,770
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Beaver, F. A.	GSFC/Shannon, J. L.	11-Astronomy

NAS 5-25448 University of California - San Diego 1674
Gamma-ray spectroscopy experiment for the gamma ray
observatory final definition phase

Period	Obligations	
01/16/79-09/30/80	FY80: \$215,962	TOTAL: \$385,962
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Peterson, L. F.	GSFC/Davis, M. A.	11-Astronomy

NAS 5-25450 University of California - San Diego 1675
Remote sensing surface truth cruise of the horizon

Period	Obligations	
01/30/79-09/30/80	FY80: \$5,368	TOTAL: \$125,315
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Austin, R. W.	GSFC/Nelsen, D.	33-Oceanograr

NASA'S UNIVERSITY PROGRAM **CALIFORNIA (Continued)**

NAS 5-26249 **University of California - San Diego** **1676**
Coastal zone scanner validation studies

Period	Obligations	
07/23/80-09/30/81	FY80: \$40,000	TOTAL: \$40,000
Prin Invest	NASA Tech Officer	CASE Category
Austin, R. W.	GSFC/Nelsen, D.	33-Oceanography

NAS 8-27974 **University of California - San Diego** **1677**
Design and development of AGR-4 MeV range gamma ray telescope experiment under the HEAO program

Period	Obligations	
06/22/72-09/30/81	FY80: \$596,000	TOTAL: \$7,991,119
Prin Invest	NASA Tech Officer	CASE Category
Peterson, L. E.	MSFC/Stone, J. F.	11-Astronomy

NAS 8-32984 **University of California - San Diego** **1678**
Analysis of soft X-ray data

Period	Obligations	
02/01/79-01/31/81	FY80:	TOTAL: \$41,184
Prin Invest	NASA Tech Officer	CASE Category
Svestka, Z.	MSFC/DeLoach, A. C.	13-Physics
	MSFC/Snoddy, W. C.	

NAS 8-33795 **University of California - San Diego** **1679**
Solar terrestrial observatory science study group

Period	Obligations	
06/23/80-06/22/81	FY80: \$35,000	TOTAL: \$35,000
Prin Invest	NASA Tech Officer	CASE Category
Canfield, R. C.	MSFC/Chappell, C. R.	31-Atmos Sci
	MSFC/Fields, S. A.	

NAS 9-16033 **University of California - San Diego** **1680**
Effect of weightlessness on the fluid physiology of the inner ear

Period	Obligations	
01/17/80-10/31/80	FY80: \$16,448	TOTAL: \$16,448
Prin Invest	NASA Tech Officer	CASE Category
Ryan, A. F.	JSC/Lintott, J.	59-Life Sci, NEC

NAS 9-16037 **University of California - San Diego** **1681**
Pulmonary functions during weightlessness function during weightlessness

Period	Obligations	
01/17/80-01/16/81	FY80: \$55,801	TOTAL: \$55,801
Prin Invest	NASA Tech Officer	CASE Category
West, J. B.	JSC/French, B.	59-Life Sci, NEC

NAS 9-16039 **University of California - San Diego** **1682**
Tissue shifts and muscle function in hormone during weightlessness

Period	Obligations	
01/17/80-05/31/81	FY80: \$21,176	TOTAL: \$21,176
Prin Invest	NASA Tech Officer	CASE Category
Morgens, A. R.	JSC/White, T.	59-Life Sci, NEC

NCA 2-658001 **University of California - San Diego** **1683**
High deformation-rate extensional rheology of of polymeric anti-misting additives

Period	Obligations	
02/01/80-01/31/81	FY80: \$10,000	TOTAL: \$10,000
Prin Invest	NASA Tech Officer	CASE Category
Middleman, S.	ARC/Altman, R. L.	46-Mech Engr

NGL 05-005-003 **University of California - San Diego** **1684**
Laboratory and balloon experiments in X-ray and gamma ray astronomy

Period	Obligations	
09/15/62-11/30/80	FY80: \$155,000	TOTAL: \$2,560,752
Prin Invest	NASA Tech Officer	CASE Category
Peterson, L. E.	HD-SC/Kaluzeński, L. J.	13-Physics
Pelling, R. M.	HD-SC/Opp, A. G.	

NGL 05-005-004 **University of California - San Diego** **1685**
Theoretical studies in astrophysics

Period	Obligations	
02/04/63-04/01/81	FY80: \$38,482	TOTAL: \$840,843
Prin Invest	NASA Tech Officer	CASE Category
Gould, R. J.	HD-SC/Kaluzeński, L. J.	11-Astronomy
	HD-SC/Opp, A. G.	

NGL 05-005-007 **University of California - San Diego** **1686**
Study of geomagnetically trapped particles by Explorer and Injun satellite data, refining particle detectors, detector systems and telemetered-data processing equipment

Period	Obligations	
02/20/64-09/30/80	FY80: \$198,773	TOTAL: \$2,571,364
Prin Invest	NASA Tech Officer	CASE Category
McIlwain, C. E.	HD-ST/Hedin, A. E.	13-Physics
	HD-ST/Schmerling, E. R.	

NGL 05-009-002 **University of California - San Diego** **1687**
Studies of the composition and structure of meteorites

Period	Obligations	
10/01/63-02/28/81	FY80: \$53,816	TOTAL: \$806,687
Prin Invest	NASA Tech Officer	CASE Category
Arrhenius, G.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. M.	

NGL 05-009-004 **University of California - San Diego** **1688**
Research on interaction of meteorites and cosmic rays and consideration of origin and history of meteorites and separation in gas phase at time of

Period	Obligations	
12/19/62-03/14/80	FY80:	TOTAL: \$1,002,694
Prin Invest	NASA Tech Officer	CASE Category
Arnold, J. R.	HD-SL/French, B. M.	32-Geological Sci
Fruchter, J. S.	HD-SL/Quaide, W. L.	
Kohl, C. P.		

NASA'S UNIVERSITY PROGRAM **CALIFORNIA (Continued)**

NGI 05-009-005 University of California - San Diego 1689
Research on general geochemical problems, including meteorite materials, rare gas content of meteorites and separation in gas phase at time of formation of solar system

Period	Obligations
10/31/62-05/31/81	FY80: TOTAL: \$536,253
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Suess, H. E.	HD-SL/Quaide, W. L. 19-Phys Sci, NEC

NGI 05-009-109 University of California - San Diego 1690
In-flight evaluation of weightlessness and gravity on cardiopulmonary function of man

Period	Obligations
02/17/69-10/31/80	FY80 TOTAL: \$873,139
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
West, J. B.	ARC Greenleaf, J. F. 56-Medical Sciences

NGI 05-009-148 University of California - San Diego 1691
Lunar sample analysis

Period	Obligations
02/11/71-01/21/81	FY80: \$120,000 TOTAL \$1,035,124
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Arnold, J. R.	JSC/Harris, J. W. 12-Chemistry

NGI 05-009-150 University of California - San Diego 1692
Lunar sample analysis

Period	Obligations
02/01/71-01/31/81	FY80: \$180,300 TOTAL \$1,615,622
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Marti, K.	HD-ET/Harrison, J. O. 12-Chemistry

NGR 05-005-005 University of California - San Diego 1693
Study of lunar gamma ray emission

Period	Obligations
09/10/63-05/31/81	FY80: \$93,331 TOTAL \$860,836
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Arnold, J. R.	HD-SL/Quaide, W. L. 32-Geological Sci
	HD-SL/French, B. M.

NGR 05-005-055 University of California - San Diego 1694
Infrared astronomic observation from high altitude airplane telescope program

Period	Obligations
06/05/73-10/31/80	FY80: \$60,734 TOTAL \$426,014
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Willner, S. P.	ARC Haughney, L. C. 11-Astronomy
	ARC Gillespie, C. M.

NGR 05-009-110 University of California - San Diego 1695
The structure and evolution of the asteroid belt

Period	Obligations
01/23/70-11/30/81	FY80: \$95,000 TOTAL: \$603,690
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Alfven, H.	HD-SL/Murphy, R. F. 11-Astronomy
Mendis, D. A.	HD-SL/Brunk, W. F.

NGR 05-009-188 University of California - San Diego 1696
Construction of a 200 channel photometer for use in low light level astronomy

Period	Obligations
05/17/72-12/31/80	FY80: \$24,065 TOTAL: \$588,928
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Mellwam, C. E.	HD-SC/Weiler, R. J. 11-Astronomy
	HD-SC/Bogges, N. W.

NGR 05-009-246 University of California - San Diego 1697
Geophysical perturbations on satellite geodesy

Period	Obligations
11/01/73-12/31/80	FY80: \$134,521 TOTAL: \$1,077,854
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Berger, J.	GSFC/Smith, D. F. 39-Env Sci, NEC
Brune, J. N.	

NSG 1641 University of California - San Diego 1698
Ship and satellite bio-optical research in the California bight

Period	Obligations
08/01/79-01/31/81	FY80: \$130,241 TOTAL: \$158,638
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Smith, R. C.	LARC/Whitlock, C. H. 33-Oceanography
	LARC/Maddrea, G. I.

NSG 2376 University of California - San Diego 1699
Three inch dimensional bispectra and the mean rate of transfer of energy in turbulence

Period	Obligations
03/01/79-10/30/80	FY80: TOTAL: \$35,119
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Rosenblatt, M.	ARC/Rubens, M. W. 19-Phys Sci, NEC
Helland, K. N.	ARC/Leonard, A.
Lu, K. S.	

NSG 3150 University of California - San Diego 1700
Analysis of interaction between spacecraft and artificially injected particles

Period	Obligations
05/01/77-12/31/79	FY80 TOTAL: \$180,671
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Whipple, E. C., Jr.	LERC/Purvis, C. K. 39-Env Sci, NEC
Deforest, S. F.	LERC/Stevens, N. J.

NSG 3219 University of California - San Diego 1701
Research on variable density turbulence

Period	Obligations
10/01/78-11/30/80	FY80: \$65,577 TOTAL: \$131,154
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Libby, P. A.	LERC/Marek, C. J. 41-Aero Engr
Larue, J. C.	

NSG 3296 University of California - San Diego 1702
Studies related to droplet burning at zero g

Period	Obligations
10/01/79-03/30/81	FY80 TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Williams, F. A.	LERC/Cochran, T. H. 13-Physics

NASA'S UNIVERSITY PROGRAM **CALIFORNIA (Continued)**

NSG 5321 University of California - San Diego 1703 **Coronal nonthermal processes**

Period	Obligations	
01/15/79-03/31/81	FY80: \$24,042	TOTAL: \$46,019
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hudson, H. S.	GSFC/Donley, J. L.	31-Atmos Sci

NSG 5322 University of California - San Diego 1704 **Solar analysis of the solar-constant monitoring package**

Period	Obligations	
01/15/79-03/31/81	FY80: \$34,457	TOTAL: \$64,892
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hudson, H. S.	GSFC/Donley, J. L.	31-Atmos Sci

NSG 5331 University of California - San Diego 1705 **Measurement of vertical crustal motion with superconducting gravimeters**

Period	Obligations	
02/01/79-01/31/81	FY80: \$132,138	TOTAL: \$178,138
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goodkind, J. M.	GSFC/Holweck, E. C.	19-Phys Sci, NEC
Warburton, R. J.		

NSG 7027 University of California - San Diego 1706 **Orbital geochemical data analysis and synthesis**

Period	Obligations	
03/01/74-01/31/81	FY80: \$31,000	TOTAL: \$418,568
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arnold, J. R.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. M.	

NSG 7102 University of California - San Diego 1707 **Research on processes controlling the formation and evolution of the small bodies in the solar system**

Period	Obligations	
09/01/74-09/30/80	FY80: \$46,204	TOTAL: \$283,408
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Alfven, H.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. M.	

NSG 7121 University of California - San Diego 1708 **Carbonaceous chondrites early irradiation and 244/pu fission records**

Period	Obligations	
02/27/75-01/31/81	FY80: \$80,795	TOTAL: \$268,217
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
MacDougall, J. D.	HD-SL/French, B. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	

NSG 7161 University of California - San Diego 1709 **Analysis and interpretation of solar X-ray data from OSO-7**

Period	Obligations	
07/01/75-09/30/80	FY80: \$63,453	TOTAL: \$278,453
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Peterson, L. E.	HD-ST/Chipman, E.	13-Physics

NSG 7294 University of California - San Diego 1710 **Preparation of a set of sky maps in hard X-rays from OSO-1 data**

Period	Obligations	
10/01/76-02/28/81	FY80:	TOTAL: \$84,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rothschild, R. E.	HD-SC/Kaluzienski, L. J.	11-Astronomy

NSG 7377 University of California - San Diego 1711 **Ultraviolet spectra of quasars related extra galactic sources, and X-ray sources**

Period	Obligations	
09/15/77-09/14/80	FY80: \$30,422	TOTAL: \$84,622
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burbidge, M.	HD-SC/Weiler, E. J.	11-Astronomy
	HD-SC/Roman, N. G.	

NSG 7406 University of California - San Diego 1712 **Hydrodynamic models of flares**

Period	Obligations	
03/01/78-01/31/81	FY80: \$69,886	TOTAL: \$186,871
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Canfield, R. C.	HD-ST/Chipman, E.	13-Physics

NSG 7541 University of California - San Diego 1713 **Theoretical studies in gamma ray line astronomy**

Period	Obligations	
02/01/80-01/31/81	FY80: \$38,500	TOTAL: \$73,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lingenfelter, R. E.	HD-SC/Kaluzienski, L. J.	11-Astronomy
	HD-SC/Opp, A. G.	

NSG 7623 University of California - San Diego 1714 **The new plasmas and its applications to planetary magnetospheres and the heliosphere**

Period	Obligations	
07/01/79-12/31/80	FY80:	TOTAL: \$60,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Alfven, H.	HD-ST/Schmerling, E. R.	19-Phys Sci, NEC

NSG 9048 University of California - San Diego 1715 **Mechanism of compensation for vestibular lesions and integrative functions in control of equilibrium**

Period	Obligations	
01/01/77-04/30/81	FY80: \$36,000	TOTAL: \$182,250
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bullock, T. H.	JSC/Homick, J. L.	56-Medical Sciences

NSG 9075 University of California - San Diego 1716 **In-flight evaluation of weightlessness and gravity on cardiopulmonary function in man**

Period	Obligations	
12/01/78-11/30/80	FY80: \$15,000	TOTAL: \$65,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
West, J. B.	JSC/Horngan, D. J.	56-Medical Sciences

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAS 2-10164 University of California - San Francisco 1717
Quantitative analysis of selected bone parameters

Period	Obligations	
02/12/79-09/15/80	FY80:	TOTAL: \$44,876
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arnaud, C	ARC/Souza, K. A.	51-Biological Sci
	ARC/Holton, E. M.	

NAS 2-10350 University of California - San Francisco 1718
Bone resorption and calcium absorption in rats during space-flight

Period	Obligations	
09/04/79-08/31/80	FY80: \$6,071	TOTAL: \$16,071
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cann, C E	ARC/Souza, K. A.	59-Life Sci, NEC

NAS 9-15887 University of California - San Francisco 1719
Computerized tomographic determination of spinal bone mineral content

Period	Obligations	
09/15/79-09/14/80	FY80:	TOTAL: \$53,400
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Genant, H. K.	JSC/Altchuler, S. I.	56-Medical Sciences
Cann, C E		

NAS 9-16027 University of California - San Francisco 1720
Determination of human 1, 25 dihydroxy vitamin D3 (1, 25 OH D3), calcitonin (CT) and parathormone (PTH) levels during the development of disuse osteoporosis

Period	Obligations	
01/01/80-12/31/81	FY80: \$24,527	TOTAL: \$24,527
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arnaud, C.	JSC/Altchuler, S. I.	56-Medical Sciences

NAS 9-16038 University of California - San Francisco 1721
Life science flight experiment insulin and glucose metabolism in man

Period	Obligations	
01/17/80-10/31/80	FY80: \$13,673	TOTAL: \$13,673
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Searle, D. L.	JSC/White, T. T.	59-Life Sci, NEC

NCA 2-665001 University of California - San Francisco 1722
Mechanisms of hormone-tissue interactions in altered gravity states

Period	Obligations	
10/01/79-12/31/80	FY80: \$12,951	TOTAL: \$12,951
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goldfine, I	ARC/Heinrich, M.	56-Medical Sciences

NCA 2-665002 University of California - San Francisco 1723
Exploratory studies of the relationship of gastric activity and other physiological measures to motion sickness

Period	Obligations	
10/01/79-09/30/81	FY80: \$49,446	TOTAL: \$49,446
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kamiya, J	ARC/Cowings, P. S.	56-Medical Sciences

NCA 2-665003 University of California - San Francisco 1724
Studies on the localization and interconnections of emetic trigger zones in the central nervous system

Period	Obligations	
01/01/80-12/31/81	FY80: \$23,616	TOTAL: \$23,616
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Snyder, R. L.	ARC/Mehler, W. R.	51-Biological Sci

NCA 2-665004 University of California - San Francisco 1725
Evaluation of osteocalcin as the homeostatic control mechanism for mineralization in bone

Period	Obligations	
01/01/80-12/31/81	FY80: \$27,826	TOTAL: \$27,826
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Asling, C. W.	ARC/Callahan, P. X.	51-Biological Sci

NCA 2-665005 University of California - San Francisco 1726
Effects of adrenergic agents on vasopressin secretion

Period	Obligations	
04/01/80-03/31/81	FY80: \$5,400	TOTAL: \$5,400
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Reid, I. A.	ARC/Keil, L. C.	51-Biological Sci

NCA 2-665006 University of California - San Francisco 1727
Interactions between osmolality and blood volume in the control of vasopressin secretion

Period	Obligations	
06/01/80-05/31/82	FY80: \$10,000	TOTAL: \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ramsay, D. J.	ARC/Keil, L. C.	51-Biological Sci

NCA 2-665007 University of California - San Francisco 1728
Exploratory studies of the cardiovascular parameters of motion sickness

Period	Obligations	
07/01/80-06/30/81	FY80: \$18,787	TOTAL: \$18,787
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Naifeh, K.	ARC/Cowings, P. S.	69-Psych, NEC

NCA 2-665008 University of California - San Francisco 1729
Calcium kinetics during hypokinesia

Period	Obligations	
07/15/80-07/14/82	FY80: \$25,736	TOTAL: \$25,736
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cann, C E	ARC/Holton, E. M.	51-Biological Sci

NCA 2-665806 University of California - San Francisco 1730
Regulation of adrenal glucocorticoid response to hemorrhage in the conscious dog

Period	Obligations	
06/01/78-12/31/80	FY80:	TOTAL: \$34,672
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dallman, M. F.	ARC/Keil, L. C.	59-Life Sci, NEC

NASA'S UNIVERSITY PROGRAM **CALIFORNIA (Continued)**

NCA 2-665810 University of California - San Francisco 1731
Autogenic-feedback training for vestibular symptomatology:
Massed vs. distributed training schedules

Period	Obligations	
09/01/78-08/31/80	FY80: \$22,900	TOTAL: \$42,700
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kamiya, J.	ARC/Cowings, P. S.	61-Biol Aspects
Toscano, W. B.		
Johnston, J.		

NCA 2-665901 University of California - San Francisco 1732
Studies on the muscle peptidases and myosin properties after
freeze-injury, cross reinnervation, immobilization and thyroid
status

Period	Obligations	
02/01/79-01/31/81	FY80: \$25,428	TOTAL: \$45,358
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Riley, D. A.	ARC/Ellis, S.	51-Biological Sci

NCA 2-665902 University of California - San Francisco 1733
Bone turnover and endocrine status in rats on a model system
that simulates weightlessness

Period	Obligations	
04/15/79-04/14/81	FY80: \$20,000	TOTAL: \$40,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arnaud, C.	ARC/Holton, E. M.	51-Biological Sci

NCA 2-665903 University of California - San Francisco 1734
Localization of tripeptidyl aminopeptidase and carbonic anhydrase
III in rat muscles by light and electron microscopy

Period	Obligations	
06/01/79-05/31/81	FY80: \$20,598	TOTAL: \$40,308
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Riley, D. A.	ARC/Ellis, S.	51-Biological Sci

NCA 2-665904 University of California - San Francisco 1735
Development of computer-controlled studies and a record
management system for psychophysiological research

Period	Obligations	
05/01/79-04/30/81	FY80: \$12,400	TOTAL: \$21,200
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kamiya, J.	ARC/Cowings, P. S.	69-Psych, NEC
Capparelli, J.		

NCA 2-665905 University of California - San Francisco 1736
Quantitative determination of diastolic left ventricular properties
and dynamic geometry in the dog

Period	Obligations	
07/01/79-06/30/81	FY80: \$9,963	TOTAL: \$12,463
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Glantz, S. A.	ARC/Sandler, H.	56-Medical Sciences

NCA 2-665906 University of California - San Francisco 1737
Ultrastructural studies of ionic transfer through bone cell sheets
in isolated perfusion culture

Period	Obligations	
07/01/79-06/30/81	FY80: \$21,853	TOTAL: \$21,853
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arnaud, C.	ARC/Philpott, D.E.	56-Medical Sciences

NGT 05-029-800 University of California - San Francisco 1738
Graduate student researchers program

Period	Obligations	
09/01/80-08/31/81	FY80: \$10,000	TOTAL: \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kuntz, I.	ARC/MacElroy, R. D.	51-Biological Sci
	ARC/Billingham, J.	

NSG 7151 University of California - San Francisco 1739
Light energy conversion in halobacterium

Period	Obligations	
07/01/75-09/30/80	FY80: \$49,985	TOTAL: \$269,605
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stoeckenius, W.	HD-SB/Young, R. S.	51-Biological Sci
Bogomolni, R. A.		
Lozier, R. H.		

NAG 2-20 University of California - Santa Barbara 1740
Modeling the relations of land use/land cover to resource
demands

Period	Obligations	
01/01/80-12/31/80	FY80: \$42,990	TOTAL: \$42,990
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Clayton, C.	ARC/Norman, S.	39-Env Sci, NEC
	ARC/Lozier, D.	

NAG 2-24 University of California - Santa Barbara 1741
Prime agricultural land monitoring and assessment component
of the California integrated remote sensing system

Period	Obligations	
01/01/80-12/31/80	FY80: \$59,997	TOTAL: \$59,997
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Estes, J. E.	ARC/Norman, S.	39-Env Sci, NEC
Tinney, L. R.	ARC/Hlavka, C.	

NAG 2-27 University of California - Santa Barbara 1742
Analytical and experimental investigation of liquid double drop
dynamics: Preliminary design for space shuttle experiments

Period	Obligations	
04/01/80-03/31/81	FY80: \$23,943	TOTAL: \$23,943
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Vanyo, J.	ARC/Brooks, W. F.	13-Physics
	ARC/Lum, H.	

NAG 2-48 University of California - Santa Barbara 1743
Thermodynamics of free electron lasers

Period	Obligations	
05/01/80-11/30/80	FY80: \$21,500	TOTAL: \$21,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Colson, W. B.	ARC/McKenzie, R. L.	13-Physics

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAS 9-15509 University of California - Santa Barbara 1744
Forest classification and inventory system using LANDSAT, digital terrain, and ground sample data

Period	Obligations	
04/01/78-10/31/80	FY80: TOTAL: \$108,927	
Prin Invest	NASA Tech Officer	CASE Category
Strahler, A. H.	JSC/Amsbury, D. L.	32-Geological Sci

NAS 9-16077 University of California - Santa Barbara 1745
Develop a plan to define a program of basic research in utilization and evaluation of information derived from remotely sensed data

Period	Obligations	
02/01/80-03/31/81	FY80: \$83,628 TOTAL: \$83,628	
Prin Invest	NASA Tech Officer	CASE Category
Estes, J. E.	JSC/MacDonald, R. B.	32-Geological Sci

NASW 3392 University of California - Santa Barbara 1746
Conference on fundamental issues in global ecology

Period	Obligations	
03/01/80-11/30/80	FY80: \$60,372 TOTAL: \$60,372	
Prin Invest	NASA Tech Officer	CASE Category
Botkin, D. B.	HD-SB/Soffen, G. A.	54-Env Biology

NCA 2-680805 University of California - Santa Barbara 1747
Studies of rotational gas cloud collapse, fragmentation and disk formation

Period	Obligations	
09/01/78-03/31/81	FY80: \$1,980 TOTAL: \$3,410	
Prin Invest	NASA Tech Officer	CASE Category
Peale, S. J.	ARC/Cassen, P.	13-Physics

NCC 2-43 University of California - Santa Barbara 1748
Proposed university regional applications program work plan FY 1980

Period	Obligations	
11/01/79-10/31/80	FY80: \$40,836 TOTAL: \$40,836	
Prin Invest	NASA Tech Officer	CASE Category
Estes, J. E.	ARC/Jones, H. W.	49-Engr, NEC
	ARC/Lumb, D. R.	

NCC 2-63 University of California - Santa Barbara 1749
An investigation of the effect of surface impurities on the absorption kinetics of hydrogen chemisorbed iron

Period	Obligations	
04/01/80-03/31/81	FY80: \$48,668 TOTAL: \$48,668	
Prin Invest	NASA Tech Officer	CASE Category
Shanabarger, M. R.	ARC/Nelson, H. G.	47-Materials Engr

NCC 5-5 University of California - Santa Barbara 1750
Soil moisture detection using Seasat data and radar scatterometers

Period	Obligations	
04/01/79-03/31/81	FY80: \$30,000 TOTAL: \$60,003	
Prin Invest	NASA Tech Officer	CASE Category
Estes, J. E.	GSFC/Chang, A.	32-Geological Sci
Simonett, D. S.		

NGR 05-010-062 University of California - Santa Barbara 1751
Planetary geophysics

Period	Obligations	
03/01/73-01/31/81	FY80: \$11,939 TOTAL: \$156,767	
Prin Invest	NASA Tech Officer	CASE Category
Peale, S. J.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B.	

NGT 05-010-800 University of California - Santa Barbara 1752
Graduate student researchers program

Period	Obligations	
09/01/80-08/31/81	FY80: \$8,700 TOTAL: \$8,700	
Prin Invest	NASA Tech Officer	CASE Category
Strahler, A. H.	JSC/Graybeal, G. E.	39-Env Sci, NEC

NSG 2377 University of California - Santa Barbara 1753
Use of collateral information to improve LANDSAT classification accuracies

Period	Obligations	
04/01/79-03/31/81	FY80: \$44,126 TOTAL: \$91,726	
Prin Invest	NASA Tech Officer	CASE Category
Strahler, A. H.	ARC/Peterson, D.	39-Env Sci, NEC
Estes, J. E.		

NSG 3256 University of California - Santa Barbara 1754
Laser fluorescence studies of the chemical interactions of sodium species with sulfur bearing fuels

Period	Obligations	
03/01/79-09/30/81	FY80: \$40,271 TOTAL: \$75,266	
Prin Invest	NASA Tech Officer	CASE Category
Steinberg, M.	LERC/Kohl, F. J.	12-Chemistry
Schofield, K.	LERC/Stearns, C. A.	

NSG 5262 University of California - Santa Barbara 1755
Calibration of satellite data for input to distributed parameter hydrologic models

Period	Obligations	
04/01/78-07/31/81	FY80: \$25,258 TOTAL: \$180,232	
Prin Invest	NASA Tech Officer	CASE Category
Dozier, J.	GSFC/Rango, A.	39-Env Sci, NEC
	GSFC/Chang, A.	

NSG 7586 University of California - Santa Barbara 1756
Magnetization of lunar samples

Period	Obligations	
05/01/79-01/31/81	FY80: \$38,587 TOTAL: \$58,587	
Prin Invest	NASA Tech Officer	CASE Category
Fuller, M. D.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. M.	

NSG 9020 University of California - Santa Barbara 1757
Remanent magnetization of lunar samples

Period	Obligations	
10/31/74-01/31/81	FY80: TOTAL: \$401,356	
Prin Invest	NASA Tech Officer	CASE Category
Fuller, M. D.	JSC/Harris, J. W.	19-Phys Sci, NEC

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NAG 8-352 University of California - Santa Cruz 1758
The relations between optical and X-ray emission from quasars and BL lagertae objects

Period	Obligations	
06/27/80-06/26/81	FY80: \$6,963	TOTAL: \$6,963
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miller, J. S.	MSFC/Swearingen, J. C.	11-Astronomy
Blumenthal, G.		

NAS 8-33347 University of California - Santa Cruz 1759
Correlative study of optical and X-ray observations of Seyfert galaxy nuclei

Period	Obligations	
03/26/79-03/25/80	FY80:	TOTAL: \$1,400
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Davies, R. L.	MSFC/Jones, J. B., Jr.	11-Astronomy

NCA 2-690001 University of California - Santa Cruz 1760
Comparison of calculated and observed properties of collapsing protostellar gas clouds

Period	Obligations	
10/01/79-08/31/81	FY80: \$49,079	TOTAL: \$49,079
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bodenheimer, P.	ARC/Black, D. C.	11-Astronomy
Villere, K. R.		

NGR 05-061-015 University of California - Santa Cruz 1761
Infrared instrumentation

Period	Obligations	
07/06/72-03/31/81	FY80:	TOTAL: \$193,385
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rank, D. M.	HD-SC/Bogges, N. W.	11-Astronomy

NSG 5361 University of California - Santa Cruz 1762
Ultraviolet spectroscopy of Tauri stars

Period	Obligations	
06/01/79-11/30/80	FY80:	TOTAL: \$5,400
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Herbig, G. H.	GSFC/Bogges, A.	11-Astronomy

NSG 7503 University of California - Santa Cruz 1763
Astronomical applications of charged coupled device technology

Period	Obligations	
11/01/78-10/31/80	FY80:	TOTAL: \$38,559
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miller, J. S.	HD-SC/Weiler, E. J.	11-Astronomy
	HD-SC/Roman, N. G.	

NCA 2-588001 University of The Pacific 1764
Laser holographic interferometry for aerodynamics

Period	Obligations	
01/01/80-10/31/80	FY80: \$15,297	TOTAL: \$15,297
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Perry, R. L.	ARC/Lee, G.	13-Physics

NCA 2-588002 University of The Pacific 1765
Proliferation and differentiation of periodontal ligament cells and bone cells during simulated weightlessness

Period	Obligations	
03/01/80-02/28/82	FY80: \$11,000	TOTAL: \$11,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Roberts, W. E.	ARC/Holton, E. M.	59-Life Sci, NEC

NAS 2-10161 University of San Francisco 1766
US/USSR radiation protection studies

Period	Obligations	
02/01/79-07/31/80	FY80:	TOTAL: \$76,789
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Benton, E. V.	ARC/Souza, K. A.	59-Life Sci, NEC

NAS 8-26758 University of San Francisco 1767
Study for heavy particle, passive, personnel dosimetry using etched particles

Period	Obligations	
01/21/71-04/30/81	FY80: \$15,000	TOTAL: \$142,704
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Benton, E. V.	MSFC/Parnell, T. A.	13-Physics
	MSFC/Watts, J. W., Jr.	

NAS 9-15152 University of San Francisco 1768
Automated analysis system for haze particle trace dosimeters

Period	Obligations	
02/01/77-12/31/81	FY80: \$100,000	TOTAL: \$348,007
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Benton, E. V.	JSC/Rundel, R.	56-Medical Sciences

NAS 9-15337 University of San Francisco 1769
Definition of Spacelab I experiment on high energy particle dosimetry

Period	Obligations	
04/01/77-12/31/81	FY80:	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Benton, E. V.	JSC/Thirolf, R. G.	13-Physics
	JSC/Huffstetler, W. J.	

NCA 2-670902 University of San Francisco 1770
The evaluation of structural and chemical alterations of bone and red blood cells in the restrained monkey model

Period	Obligations	
07/01/79-06/30/81	FY80: \$22,500	TOTAL: \$37,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Furst, A.	ARC/Young, D. R.	51-Biological Sci
	ARC/Leon, H. A.	

NCC 2-47 University of San Francisco 1771
Histopathological changes in rodents caused by haze particle irradiation

Period	Obligations	
01/01/80-12/31/80	FY80: \$33,998	TOTAL: \$33,998
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Benton, E. V.	ARC/Kraft, L. M.	51-Biological Sci

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCA 2-85 University of San Francisco 1772
Structure and function of isozymes: Evolutionary aspects and role of oxygen in eucaryotic organisms

Period	Obligations	
06/01/80-05/31/81	FY80: \$40,000	TOTAL: \$40,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Satyanarayana, T	ARC/Klein, H. P.	59-Life Sci, NEC
Furst, A.	ARC/Volkman, C. M.	

NCA 2-685002 University of Santa Clara 1773
Enzyme-linked Immunosorbent Assay (ELISA) for detecting upper respiratory tract infection

Period	Obligations	
10/01/79-12/31/80	FY80: \$10,000	TOTAL \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Caren, L. D.	ARC/Mandel, A. D.	51-Biological Sci

NCA 2-685003 University of Santa Clara 1774
Bioassayable growth hormone. Isolation development of a radioimmunoassay and validation of the assay

Period	Obligations	
10/01/79-09/30/81	FY80: \$29,993	TOTAL \$29,993
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
East, T	ARC Grindeland, R.E	51-Biological Sci

NCA 2-685004 University of Santa Clara 1775
On the distribution of oxygen sensitivity among bacterial denitrifiers with particular emphasis to its ecological significance

Period	Obligations	
01/01/80-12/31/81	FY80 \$20,689	TOTAL \$20,689
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tomlinson, G. A	ARC Hochstein, I. I.	51-Biological Sci

NCA 2-685005 University of Santa Clara 1776
Clay catalysis of prebiotic polymerizations Possible roles and mechanics of action of metal ions

Period	Obligations	
12/01/79-11/30/80	FY80 \$12,136	TOTAL \$12,136
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sweeney, M. A	ARC Lawless, J. G.	12-Chemistry

NCA 2-685006 University of Santa Clara 1777
A model for prebiotic translation Peptide catalysis of polynucleotide-templated amino acid condensation of fluctuating clay surfaces

Period	Obligations	
01/01/80-12/31/81	FY80: \$14,502	TOTAL \$14,502
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
White, D. H	ARC Chang, S.	12-Chemistry

NCA 2-685008 University of Santa Clara 1778
Ecological studies of the Laguna Figueroa del Norte

Period	Obligations	
04/15/80-11/15/80	FY80 \$24,000	TOTAL \$24,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tomlinson, G. A	ARC Deal, P. H	54-Env Biology

NCA 2-685905 University of Santa Clara 1779
Real-time hardware design for adaptive digital video bandwidth compression

Period	Obligations	
01/01/79-11/30/80	FY80: \$9,910	TOTAL: \$16,873
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Danielson, R. L.	ARC/Knauer, S.C	22-Computer Science

NCA 2-685906 University of Santa Clara 1780
Applications of the two-dimensional model of the Venus ionosphere

Period	Obligations	
06/01/79-05/31/81	FY80: \$11,305	TOTAL: \$28,686
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McCormick, P. T	ARC/Whitten, R. C	13-Physics

NCC 2-16 University of Santa Clara 1781
The effect of boundary conditions on finite difference solutions of fluid flow problems

Period	Obligations	
07/01/79-11/30/80	FY80: \$32,603	TOTAL \$50,603
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Vinokur, M	ARC/Lomax, H.	41-Aero Engr

NCC 2-49 University of Santa Clara 1782
An analysis of anticipated psychosocial requirements for future space flight

Period	Obligations	
11/01/79-10/30/80	FY80 \$19,965	TOTAL \$19,965
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rakins, F.	ARC/Connors, M	61-Biol Aspects

NCC 2-60 University of Santa Clara 1783
Wind tunnel simulations of Martian sand storms

Period	Obligations	
02/01/80-01/31/81	FY80: \$56,300	TOTAL \$56,300
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Greeley, R.	ARC/Margozzi, A. P.	99-Multi-Discip
Leach, R		

NCE 05-017-998 University of Santa Clara 1784
Summer faculty fellowship program in engineering systems design

Period	Obligations	
01/01/79-03/31/81	FY80 \$202,977	TOTAL \$339,073
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Healy, T. J	HD-LU/Carter, C. H.	49-Engr, NEC

NSG 7330 University of Santa Clara 1785
Effect of layering on viscous flow of lunar craters

Period	Obligations	
03/01/77-02/28/81	FY80 \$4,267	TOTAL \$93,972
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Aggarwal, H. R	HD-SL/Quaide, W. L.	22-Geological Sci
	HD-SL/French, B. F.	

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

SAG 1-19 University of Southern California 1786
A study of streamwise vortices

Period	Obligations	
12/05/79-12/04/80	FY80: \$74,078	TOTAL: \$74,078
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Blackwelder, R. F.	LARC/Hefner, J. N.	41-Aero Engr
	LARC/Anders, J. B.	

SAGW 13 University of Southern California 1787
A three-dimensional observational study of the solar 5-minute oscillations

Period	Obligations	
01/01/80-12/31/80	FY80: \$68,000	TOTAL: \$68,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rhodes, E. J.	HD-ST/Chipman, E.	11-Astronomy
Ulrich, R. K.	HD-ST/Tomayko, D. W.	

SAGW 43 University of Southern California 1788
Creep of orthoentstatite at high temperature and low strain rates

Period	Obligations	
03/01/80-02/28/81	FY80: \$39,832	TOTAL: \$39,832
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sammis, C. G.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. M.	

SAGW 57 University of Southern California 1789
Comparative planetary aeronomy Venus studies

Period	Obligations	
04/01/80-03/31/81	FY80: \$20,000	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kumar, S.	HD-SL/Murphy, R. F.	31-Atmos Sci
	HD-SL/Brunk, W. E.	

SAGW 62 University of Southern California 1790
A scientific program in planetary atmospheric studies

Period	Obligations	
05/01/80-10/31/81	FY80: \$200,000	TOTAL: \$200,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Broadfoot, A. L.	HD-SL/Murphy, R. F.	11-Astronomy
	HD-SL/Brunk, W. E.	

SAS 2-6558 University of Southern California 1791
Pioneer F/G analysis of ultraviolet experiment

Period	Obligations	
09/01/71-12/31/80	FY80: \$165,000	TOTAL: \$1,351,116
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Judge, D. L.	ARC/Fimmel, R. O.	11-Astronomy
	ARC/Dyer, J.	

SAS 2-10794 University of Southern California 1792
Technology identification and application for the advanced technology display house

Period	Obligations	
10/01/80-06/30/81	FY80: \$40,135	TOTAL: \$40,135
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mixer, R.	ARC/Holley, H.	

NASW 3235 University of Southern California 1793
Operation of NASA Industrial Application Center

Period	Obligations	
04/01/78-03/31/81	FY80: \$282,502	TOTAL: \$905,429
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mixer, R.	HD-ET/Bivins, R. G.	99-Multi-Discip
	HD-ET/Ault, L. A.	

NCC 1-38 University of Southern California 1794
Workshops on automated decision making and problem solving

Period	Obligations	
03/06/80-12/05/80	FY80: \$61,720	TOTAL: \$61,720
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Heer, E.	LARC/Pennington, J. E.	22-Computer Science
	LARC/Hankins, W. W.	

NGR 05-018-178 University of Southern California 1795
Dynamics of rotating-stratified flows with applications to the Jovian atmosphere

Period	Obligations	
09/11/72-08/31/80	FY80: \$75,117	TOTAL: \$37,432
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Maxworthy, T.	HD-SL/Murphy, R. F.	31-Atmos Sci
Redekopp, L. G.	HD-SL/Brunk, W. E.	

NGR 05-018-180 University of Southern California 1796
Photon-molecule interaction studies of the atmospheric gases

Period	Obligations	
08/31/72-04/30/81	FY80: \$68,434	TOTAL: \$400,527
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Judge, D. L.	HD-SL/Murphy, R. F.	31-Atmos Sci
	HD-SL/Brunk, W. E.	

NGR 05-018-181 University of Southern California 1797
Analysis of Pioneer solar wind observations of the interplanetary medium

Period	Obligations	
10/25/72-09/30/80	FY80	TOTAL: \$196,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Intriligator, D. S.	HD-ST/Schmerling, F. R.	13-Physics

NGR 05-018-185 University of Southern California 1798
Study of the structure of magnetopause using simultaneous OGO-5 magnetic field light ion mass

Period	Obligations	
06/27/73-06/30/80	FY80	TOTAL: \$25,795
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Intriligator, D. S.	HD-ST/Cauffman, D. P.	13-Physics

NSG 1401 University of Southern California 1799
Investigation of an improved theory for the analysis of natural and manmade layered structures

Period	Obligations	
03/15/77-02/28/81	FY80	TOTAL: \$112,203
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Seide, P.	LARC/Stein, M.	41-Aero Engr

NASA'S UNIVERSITY PROGRAM **CALIFORNIA (Continued)**

NSG 1536 **University of Southern California** **1800**
Electro-deposition of III-V compounds and their alloys from molten salts with special reference large area solar cells

Period	Obligations
09/01/78-05/31/81	FY80: \$52,061 TOTAL: \$96,312
Prin. Invest.	NASA Tech. Officer CASE Category
Kroger, F. A.	LARC/Conway, E. J. 47-Materials Engr
	LARC/Walker, G. H.

NSG 2351 **University of Southern California** **1801**
Theoretical developments in the computation of the electronic properties of molecules

Period	Obligations
01/01/79-12/31/80	FY80: \$24,820 TOTAL: \$48,560
Prin. Invest.	NASA Tech. Officer CASE Category
Segal, G. A.	ARC/Jaffee, R. L. 31-Mathematics

NSG 3243 **University of Southern California** **1802**
Axial field permanent magnet motors for electrical vehicles

Period	Obligations
01/08/79-01/07/81	FY80: TOTAL: \$124,000
Prin. Invest.	NASA Tech. Officer CASE Category
Maslowski, R. A.	LERC/Secunde, R. R. 45-Elec Engr

NSG 5108 **University of Southern California** **1803**
Rocket experiments to measure the solar intensity and profile

Period	Obligations
04/01/76-12/31/80	FY80: \$47,948 TOTAL: \$376,176
Prin. Invest.	NASA Tech. Officer CASE Category
Judge, D. L.	GSFC/Bissell, E. F. 13-Physics
Carlson, R. W.	HD-SL/Murphy, R. E.

NSG 55.6 **University of Southern California** **1804**
Study of the nature of shells in stars

Period	Obligations
06/01/79-05/31/81	FY80: TOTAL: \$4,000
Prin. Invest.	NASA Tech. Officer CASE Category
Peters, G. J.	GSFC/Kupperian, J. E., Jr. 11-Astronomy

NSG 5412 **University of Southern California** **1805**
Observations of the Sun, Alpha Centauri and cluster stars

Period	Obligations
11/01/79-10/31/80	FY80: \$13,600 TOTAL: \$13,600
Prin. Invest.	NASA Tech. Officer CASE Category
Barry, D. C.	GSFC/Bogges, A. 11-Astronomy

NSG 5422 **University of Southern California** **1806**
A comparative study of the far ultraviolet spectra of BE stars

Period	Obligations
10/15/79-08/14/81	FY80: \$20,900 TOTAL: \$20,900
Prin. Invest.	NASA Tech. Officer CASE Category
Peters, G. J.	GSFC/Bogges, A. 11-Astronomy
Polidan, R. S.	

NSG 7367 **University of Southern California** **1807**
Complementary pairing of amino acids, Schiff bases and a reverse translation mechanism for the origin of the genetic code under pre-biotic conditions

Period	Obligations
10/01/77-01/31/81	FY80: \$83,999 TOTAL: \$211,102
Prin. Invest.	NASA Tech. Officer CASE Category
Strehler, B. L.	HD-SB/Devincenzi, D. L. 51-Biological Sci

NSG 7535 **University of Southern California** **1808**
Development of room temperature mercuric iodide X-ray detectors for in-site analysis of extra terrestrial objects

Period	Obligations
01/26/79-02/28/81	FY80: \$60,000 TOTAL: \$116,453
Prin. Invest.	NASA Tech. Officer CASE Category
Huth, G. C.	HD-SL/French, L. M. 32-Geological Sci
	HD-SL/Quade, W. I.

NSG 7595 **University of Southern California** **1809**
A study of atmospheric development of exospheric planetary bodies

Period	Obligations
05/01/79-04/30/81	FY80: \$43,046 TOTAL: \$85,917
Prin. Invest.	NASA Tech. Officer CASE Category
Shemansky, D. E.	HD-SL/Murphy, R. E. 31-Atmos Sci
	HD-SL/Brunk, W. F.

NSG 7644 **University of Southern California** **1810**
Application of improved detector technology to a continuing program of solar-system observations

Period	Obligations
11/02/79-07/31/80	FY80: \$100,000 TOTAL: \$100,000
Prin. Invest.	NASA Tech. Officer CASE Category
Broadfoot, A. L.	HD-SL/Murphy, R. E. 31-Atmos Sci
	HD-SL/Brunk, W. E.

COLORADO

NSG 3122 **Colorado School of Mines** **1811**
Determination of the mechanism of influence of organic compounds on the thermal instability of fuels

Period	Obligations
11/01/76-10/31/80	FY80: \$3,657 TOTAL: \$111,217
Prin. Invest.	NASA Tech. Officer CASE Category
Daniel, S. R.	LERC/Antoine, A. C. 12-Chemistry
Gary, J. H.	

NSG 3-25 **Colorado State University** **1812**
Ion implantation to inhibit the corrosion of ferrous metals

Period	Obligations
02/01/80-01/31/81	FY80: \$9,554 TOTAL: \$9,554
Prin. Invest.	NASA Tech. Officer CASE Category
Wilbur, P. J.	LERC/Kerslake, W. R. 47-Materials Engr
Robinson, R. S.	

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NAG 3-34 **Colorado State University** **1813**
Atomic hydrogen rocket engine
Period *Obligations*
02/01/80-01/31/81 FY80: \$24,981 TOTAL: \$24,981
Prin Invest *NASA Tech Officer* *CASE Category*
Etters, R. D. LERC/Nakanishi, S. 13-Physics

NAS 1-15580 **Colorado State University** **1820**
Satellite and digital data tapes (GOES)
Period *Obligations*
03/13/79-03/12/80 FY80: \$47,990 TOTAL: \$111,990
Prin Invest *NASA Tech Officer* *CASE Category*
Vonderhaar, T. H. LARC/Harrison, E. F. 31-Atmos Sci
LARC/Cooper, J. E.

NAG 3-40 **Colorado State University** **1814**
Development of models for nonlinear fracture processes
Period *Obligations*
06/01/80-11/30/80 FY80: \$20,271 TOTAL: \$20,271
Prin Invest *NASA Tech Officer* *CASE Category*
Smith, F. W. LERC/Smith, G. T. 46-Mech Engr

NAS 1-15925 **Colorado State University** **1821**
Study of building effects on exhaust plume
Period *Obligations*
09/05/79-01/04/80 FY80: TOTAL: \$15,000
Prin Invest *NASA Tech Officer* *CASE Category*
Meroney, R. N. LARC/Lassiter, W. S. 31-Atmos Sci
LARC/Lovell, J. B.

NAG 3-43 **Colorado State University** **1815**
Ion beam microtexturing of surfaces
Period *Obligations*
03/01/80-02/28/81 FY80: \$19,962 TOTAL: \$19,962
Prin Invest *NASA Tech Officer* *CASE Category*
Robinson, R. S. LERC/Mirtuch, M. J. 19-Phys Sci, NEC
Kaufman, H. A.

NAS 1-16465 **Colorado State University** **1822**
Scientific investigations for the Earth Radiation Budget Experiment (ERBE)
Period *Obligations*
09/30/80-09/29/85 FY80: \$25,000 TOTAL: \$25,000
Prin Invest *NASA Tech Officer* *CASE Category*
Vonderhaar, T. H. LARC/Hall, J. B. 31-Atmos Sci
LARC/Barkstrom, B. R.

NAG 5-58 **Colorado State University** **1816**
A laboratory investigation of the reflective properties of simulated, optically thick clouds
Period *Obligations*
05/15/80-05/14/81 FY80: \$72,009 TOTAL: \$72,009
Prin Invest *NASA Tech Officer* *CASE Category*
McKee, T. B. GSFC/King, M. D. 31-Atmos Sci

NAS 5-22959 **Colorado State University** **1823**
Earth radiation budget sensor support
Period *Obligations*
01/23/76-10/01/81 FY80: \$20,000 TOTAL: \$216,000
Prin Invest *NASA Tech Officer* *CASE Category*
Vonderhaar, T. H. GSFC/Nelsen, E. D. 39-Env Sci, NEC

NAG 5-88 **Colorado State University** **1817**
Radiometer measurements of snowpack
Period *Obligations*
08/01/80-07/31/81 FY80: \$40,508 TOTAL: \$40,508
Prin Invest *NASA Tech Officer* *CASE Category*
Boyne, H. S. GSFC/Rango, A. 19-Phys Sci, NEC

NAS 5-25696 **Colorado State University** **1824**
Processing of LANDSAT data for charge detection research
Period *Obligations*
06/06/79-12/08/80 FY80: TOTAL: \$5,100
Prin Invest *NASA Tech Officer* *CASE Category*
Maxwell, E. GSFC/Toll, D. 39-Env Sci, NEC

NAG 9-10 **Colorado State University** **1818**
Life spans of skin fibroblasts from irradiated primates
Period *Obligations*
06/16/80-06/15/81 FY80: \$25,000 TOTAL: \$25,000
Prin Invest *NASA Tech Officer* *CASE Category*
Lett, J. T. JSC/Hoffman, R. A. 54-Env Biology

NAS 5-26127 **Colorado State University** **1825**
Urban area change detection procedures with remote sensing data
Period *Obligations*
04/15/80-12/30/80 FY80: \$32,500 TOTAL: \$32,500
Prin Invest *NASA Tech Officer* *CASE Category*
Maxwell, E. GSFC/Toll, D. 21-Mathematics

NAGW 8 **Colorado State University** **1819**
Experiments with phase transitions at very high pressure
Period *Obligations*
10/01/79-11/30/80 FY80: \$85,000 TOTAL: \$85,000
Prin Invest *NASA Tech Officer* *CASE Category*
Spain, I. L. LERC/Jones, W. R. 13-Physics

NAS 9-16016 **Colorado State University** **1826**
Development of a plan for fundamental research in electromagnetic radiation characteristics for renewable resources and features
Period *Obligations*
10/01/79-09/30/80 FY80: \$75,900 TOTAL: \$75,900
Prin Invest *NASA Tech Officer* *CASE Category*
Smith, J. A. JSC/MacDonald, R. B. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NCA 2-165001 **Colorado State University** **1827**
A vectorized multigrid for the Cauchy-Riemann equations
Period *Obligations*
05/01/80-12/31/80 FY80: \$4,950 **TOTAL: \$4,950**
Prin Invest *NASA Tech Officer* *CASE Category*
Thomas, J. W. ARC/Lomax, H. 21-Mathematics

NCA 2-165901 **Colorado State University** **1828**
Applications of Gaussian collocation to the solution of the compressible Navier-Stokes equations
Period *Obligations*
10/01/78-09/30/80 FY80: **TOTAL: \$22,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Prenter, P. M. ARC/Murphy, J. D. 21-Mathematics

NGR 06-002-095 **Colorado State University** **1829**
Combustion instability with partial length acoustic lines
Period *Obligations*
12/02/80-03/01/80 FY80: **TOTAL: \$348,949**
Prin Invest *NASA Tech Officer* *CASE Category*
Mitchell, C. I. IERC/Priem, R. J. 42-Astro Engr

NGR 06-002-112 **Colorado State University** **1830**
An experimental investigation of hollow cathode discharge start-up and operation
Period *Obligations*
12/21/80-11/30/80 FY80: \$92,342 **TOTAL: \$640,086**
Prin Invest *NASA Tech Officer* *CASE Category*
Wilbur, P. J. IERC/Kerslake, W. R. 46-Mech Engr

NGR 06-002-159 **Colorado State University** **1831**
Bulk properties of atomic triplet hydrogen and high pressure equation of state for solid hydrogen
Period *Obligations*
12/04/80-04/30/81 FY80: \$45,668 **TOTAL: \$195,077**
Prin Invest *NASA Tech Officer* *CASE Category*
Hiers, R. D. IERC/Hendricks, R. C. 13-Physics

NGF 06-002-800 **Colorado State University** **1832**
Graduate student researchers program
Period *Obligations*
09/01/80-08/31/81 FY80: \$9,810 **TOTAL: \$9,810**
Prin Invest *NASA Tech Officer* *CASE Category*
Smith, J. A. JSC/Pitts, D. 54-Env Biology

NSG 1594 **Colorado State University** **1833**
Approaching the ultimate velocimeter Laser techniques for measuring molecular flows
Period *Obligations*
02/01/79-02/28/81 FY80: \$99,701 **TOTAL: \$121,637**
Prin Invest *NASA Tech Officer* *CASE Category*
She, C. Y. IARC/Faxon, R. J. 13-Physics
Fairbanks, W. M., Jr

NSG 2232 **Colorado State University** **1834**
Effects of the hypokinetic state on bioenergetic balance using the rat as a model mammalian system
Period *Obligations*
05/01/77-12/31/80 FY80: **TOTAL: \$75,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Jordan, J. P. ARC/Holton, E. M. 51-Biological Sci

NSG 2287 **Colorado State University** **1835**
Velocity measurements by laser resonance fluorescence from a single atom
Period *Obligations*
12/01/77-10/31/80 FY80: \$6,000 **TOTAL: \$65,000**
Prin Invest *NASA Tech Officer* *CASE Category*
She, C. Y. ARC/McKenzie, R. L. 13-Physics
Fairbanks, W. M.

NSG 3011 **Colorado State University** **1836**
Experimental investigations of argon and xenon ion sources
Period *Obligations*
07/01/74-10/31/80 FY80: \$50,000 **TOTAL: \$315,926**
Prin Invest *NASA Tech Officer* *CASE Category*
Kaufman, H. R. IERC/Kerslake, W. R. 42-Astro Engr
Robinson, R. S.

NSG 3086 **Colorado State University** **1837**
Industrial ion source technology
Period *Obligations*
11/15/75-12/14/80 FY80: \$35,068 **TOTAL: \$215,315**
Prin Invest *NASA Tech Officer* *CASE Category*
Kaufman, H. R. IERC/Mirtich, M. J. 13-Physics
Robinson, R. S. IERC/Banks, B. A.

NSG 3127 **Colorado State University** **1838**
Effects of turbulence on laminar separation on aerodynamic surfaces such as airfoils blading
Period *Obligations*
10/01/76-04/15/81 FY80: \$70,606 **TOTAL: \$258,837**
Prin Invest *NASA Tech Officer* *CASE Category*
Sadeh, W. Z. IERC/Sokol, P. M. 41-Aero Engr

NSG 3145 **Colorado State University** **1839**
Laboratory simulation of irradiation-induced dielectric breakdown in spacecraft charging
Period *Obligations*
04/01/77-12/01/79 FY80: **TOTAL: \$95,490**
Prin Invest *NASA Tech Officer* *CASE Category*
Yadlowsky, F. J. IERC/Staskus, J. V. 13-Physics
Churchill, R. J.

NSG 3196 **Colorado State University** **1840**
Space environmental effects on high voltage solar arrays
Period *Obligations*
05/15/78-05/13/81 FY80: \$39,993 **TOTAL: \$119,302**
Prin Invest *NASA Tech Officer* *CASE Category*
Kaufman, H. R. IERC/Grier, N. E. 13-Physics

NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)

NSG 5258 **Colorado State University** **1841**
Tropical cyclone intensities from satellite microwave data
Period Obligations
04/01/78-03/31/80 **FY80:** **TOTAL: \$56,897**
Prin Invest NASA Tech Officer CASE Category
Vonderhaar, T. H. GSFC/Rodgers, F. B. 31-Atmos Sci
Kidder, S. Q.

NSG 5340 **Colorado State University** **1842**
Atmospheric variability and air-sea interaction
Period Obligations
04/01/79-07/31/80 **FY80** **TOTAL: \$20,000**
Prin Invest NASA Tech Officer CASE Category
Reiter, F. R. GSFC/Arking, A. 31-Atmos Sci

NSG 5341 **Colorado State University** **1843**
Research of satellite inferences of convective storm intensity
Period Obligations
05/01/79-04/30/81 **FY80 \$77,502** **TOTAL: \$143,423**
Prin Invest NASA Tech Officer CASE Category
Cotton, W. R. GSFC/Heymsfield, G. M. 31-Atmos Sci
Tripoli, G. J.
Reynolds, D. W.

NSG 5352 **Colorado State University** **1844**
Study of the global positioning system for maritime concepts
Period Obligations
06/01/79-10/31/81 **FY80** **TOTAL: \$54,910**
Prin Invest NASA Tech Officer CASE Category
Parkenson, B. W. GSFC/Taylor, M. B. 45-Nav Engr
Winn, C. B.

NSG 5357 **Colorado State University** **1845**
Initial studies of middle and upper tropospheric stratiform clouds
Period Obligations
06/01/79-05/31/81 **FY80 \$94,000** **TOTAL: \$157,649**
Prin Invest NASA Tech Officer CASE Category
Cox, S. K. GSFC/Curran, R. J. 31-Atmos Sci

NSG 9045 **Colorado State University** **1846**
Effects of heavy ions on optic tissues
Period Obligations
10/01/76-05/31/81 **FY80 \$35,000** **TOTAL: \$209,500**
Prin Invest NASA Tech Officer CASE Category
Lett, J. T. JSC/Hoffman, R. A. 59-Life Sci, NLC

NAG 5-1 **Fort Lewis College** **1847**
Investigations relative to statistical procedures for thermal vacuum test optimization
Period Obligations
01/15/80-01/14/81 **FY80 \$32,991** **TOTAL: \$32,991**
Prin Invest NASA Tech Officer CASE Category
Williams, R. F. GSFC/Kruger, R. 49-Engr, NLC
Byrd, J. W.

NAG 1-59 **University of Colorado - Boulder** **1848**
Effect of external flow in existing turbulence
Period Obligations
04/03/80-04/02/81 **FY80: \$20,000** **TOTAL: \$20,000**
Prin Invest NASA Tech Officer CASE Category
Uberoi, M. S. LARC/Stainback, P. C. 41-Aero Engr
LARC/Harvey, W. D.

NAG 2-58 **University of Colorado - Boulder** **1849**
Influence of gravity independent parameters on the constitutive behavior of soil
Period Obligations
08/01/80-01/31/81 **FY80 \$33,140** **TOTAL: \$33,140**
Prin Invest NASA Tech Officer CASE Category
Sture, S. ARC/Brooks, W. F. 44-Civil Engr
ARC/Lum, H.

NAG 5-15 **University of Colorado - Boulder** **1850**
Study of circumstellar shells and stellar wind variability in supergiant stars
Period Obligations
03/01/80-02/28/82 **FY80: \$10,067** **TOTAL: \$10,067**
Prin Invest NASA Tech Officer CASE Category
Snow, T. P. GSFC/Corrigan, J. P. 11-Astronomy

NAG 5-21 **University of Colorado - Boulder** **1851**
Gravity measurements in support of long baseline
Period Obligations
03/01/80-02/28/81 **FY80: \$40,000** **TOTAL: \$40,000**
Prin Invest NASA Tech Officer CASE Category
Whitcomb, J. H. GSFC/Harper, E. L. 32-Geological Sci
Anderson, D. GSFC/Allenby, R. J.

NAG 5-22 **University of Colorado - Boulder** **1852**
Modeling of tectonophysical distortion from measurements of long-baseline geodetic data and other
Period Obligations
03/01/80-02/28/81 **FY80 \$27,512** **TOTAL: \$27,512**
Prin Invest NASA Tech Officer CASE Category
Whitcomb, J. H. GSFC/Harper, E. L. 32-Geological Sci
Harrison, J. C. GSFC/Allenby, R. J.

NAG 5-78 **University of Colorado - Boulder** **1853**
Spectroscopic observations of selected stellar systems
Period Obligations
07/01/80-11/30/80 **FY80 \$10,000** **TOTAL: \$10,000**
Prin Invest NASA Tech Officer CASE Category
Conti, P. S. GSFC/Boggess, A. 11-Astronomy
Garmany, C. D.

NAG 5-82 **University of Colorado - Boulder** **1854**
International Ultraviolet Explorer (IUE) studies of cool stars
Period Obligations
07/01/80-11/30/80 **FY80: \$17,800** **TOTAL: \$17,800**
Prin Invest NASA Tech Officer CASE Category
Linsky, J. L. GSFC/Boggess, A. 11-Astronomy
Stencel, R. F.

NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)

NAG 8-96 University of Colorado - Boulder 1855
Study of reflection grating spectrometers for X-ray astronomy
Period Obligations
09/01/80-02/28/82 FY80: \$70,775 TOTAL: \$70,775
Prin Invest NASA Tech Officer CASE Category
Cash, W. C. GSFC/Guidotti, J. 11-Astronomy
McClintock, W. F. HD-SC/Kaluzienski, L. J.

NAG 8-111 University of Colorado - Boulder 1856
Interstellar observations of OB associations with the Capernicus
Period Obligations
10/01/80-09/30/81 FY80: \$11,557 TOTAL: \$11,557
Prin Invest NASA Tech Officer CASE Category
Shull, J. M. GSFC/Corrigan, J. P. 11-Astronomy

NAG 8-300 University of Colorado - Boulder 1857
A study of X-ray emission from A and A-peculiar stars
Period Obligations
12/21/79-12/20/80 FY80: \$4,010 TOTAL: \$4,010
Prin Invest NASA Tech Officer CASE Category
Snow, T. P. MSFC/Manning, H. S. 11-Astronomy

NAG 8-316 University of Colorado - Boulder 1858
Are hot coronae ubiquitous among late type stars? A probe of the corona wind boundary in the HR diagram
Period Obligations
02/01/80-01/31/81 FY80: \$3,100 TOTAL: \$3,100
Prin Invest NASA Tech Officer CASE Category
Ayres, T. R. MSFC/Jones, J. B., Jr. 11-Astronomy
Haisch, B. M.

NAG 8-327 University of Colorado - Boulder 1859
X-ray emission from normal and peculiar A stars with the Einstein Observatory and search for soft X-ray variability in OB stars
Period Obligations
03/01/80-02/28/81 FY80: \$22,427 TOTAL: \$22,427
Prin Invest NASA Tech Officer CASE Category
Snow, T. P. MSFC/Jones, J. B. 11-Astronomy
Cash, W. C.
Grady, C.

NAG 8-334 University of Colorado - Boulder 1860
Studies of the correlation between X-ray emission from stars and presence of a strong stellar wind and stellar rotation rate and a study of coronae in three peculiar late-type stars
Period Obligations
02/15/80-02/14/81 FY80: \$16,300 TOTAL: \$16,300
Prin Invest NASA Tech Officer CASE Category
Linsky, J. L. MSFC/Jones, J. B. 11-Astronomy
Ayres, T. R.
Stencel, R. F.

NAG 8-353 University of Colorado - Boulder 1861
Study of the giant X-ray ring of cygnus with Einstein Observatory. Search for X-ray superbubbles and for low temperatures X-rays from Capella
Period Obligations
06/27/80-06/26/81 FY80: \$16,200 TOTAL: \$16,200
Prin Invest NASA Tech Officer CASE Category
Cash, W. C. MSFC/Swearingen, J. C. 11-Astronomy
Charles, P. A.

NAG 8-382 University of Colorado - Boulder 1862
A critical test of the rotation-coronae correlation with selected Hertzsprung gap stars
Period Obligations
09/22/80-09/21/81 FY80: \$7,775 TOTAL: \$7,775
Prin Invest NASA Tech Officer CASE Category
Simon, T. S. MSFC/Stone, J. F. 11-Astronomy
Linsky, J. L.

NAGW 91 University of Colorado - Boulder 1863
Turbulence and wave-particle interactions in solar-terrestrial plasmas
Period Obligations
07/01/80-06/03/81 FY80: \$95,000 TOTAL: \$95,000
Prin Invest NASA Tech Officer CASE Category
Dulk, G. A. HD-ST/Birmingham, T. J. 13-Physics
HD-ST/Newton, G. P.

NAS 2-9477 University of Colorado - Boulder 1864
Pioneer Venus data analysis of the orbiter ultraviolet spectrometer experiment
Period Obligations
08/30/77-09/30/80 FY80: \$167,339 TOTAL: \$610,493
Prin Invest NASA Tech Officer CASE Category
Stewart, I. A. ARC/Hall, C. F. 19-Phys Sci, NEC
Barth, C. A. ARC/Porter, D. L.
Hord, C. W.

NAS 5-11405 University of Colorado - Boulder 1865
University of Colorado ultraviolet nitric oxide experiment for atmosphere Explorer
Period Obligations
03/17/71-09/30/81 FY80 TOTAL: \$1,065,642
Prin Invest NASA Tech Officer CASE Category
Barth, C. A. GSFC/Bullock, G. D. 31-Atmos Sci
Stewart, A. L.

NAS 5-22409 University of Colorado - Boulder 1866
Reduction and analysis of data from the OSO-1 high resolution ultraviolet spectrometer experiment
Period Obligations
06/26/75-09/30/80 FY80: \$19,500 TOTAL: \$1,884,838
Prin Invest NASA Tech Officer CASE Category
Illing, R. M. GSFC/Corrigan, J. P. 31-Atmos Sci

NASA'S UNIVERSITY PROGRAM **COLORADO (Continued)**

NAS 5-22833 **University of Colorado - Boulder** **1867**
Theoretical calculations of spectral features in the expanding envelopes of early-type stars

Period	Obligations
11/03/75-07/01/80	FY80: TOTAL: \$83,380
Prin Invest	NASA Tech Officer CASE Category
Conti, P. S.	GSFC/Boggess, A. 11-Astronomy

NAS 5-23274 **University of Colorado - Boulder** **1868**
Development of models for physical properties of stellar chromospheres

Period	Obligations
08/01/73-09/30/80	FY80: TOTAL: \$129,753
Prin Invest	NASA Tech Officer CASE Category
Linsky, J. L.	GSFC/Boggess, A. 11-Astronomy

NAS 5-25887 **University of Colorado - Boulder** **1869**
Nutation and polar motion of the Earth LAGEOS number three

Period	Obligations
09/25/79-12/24/80	FY80: TOTAL: \$26,745
Prin Invest	NASA Tech Officer CASE Category
Smith, M. L.	GSFC/Stephanides, C. C. 32-Geological Sci

NAS 5-25957 **University of Colorado - Boulder** **1870**
Magnetic field monitor satellite investigation investigation of geomagnetic field forecasting and fluid dynamics of the core

Period	Obligations
12/27/79-08/27/82	FY80: \$73,248 TOTAL: \$73,248
Prin Invest	NASA Tech Officer CASE Category
Benton, E. R.	GSFC/Oseroff, H. 32-Geological Sci

NAS 5-26170 **University of Colorado - Boulder** **1871**
Study of the ultraviolet ozone spectrometer for the Upper Atmosphere Research Satellites (UARS)

Period	Obligations
09/23/80-06/30/81	FY80: \$150,597 TOTAL: \$150,597
Prin Invest	NASA Tech Officer CASE Category
Mount, G. H.	GSFC/Donley, J. L. 31-Atmos Sci

NAS 5-26172 **University of Colorado - Boulder** **1872**
Study of the ultraviolet solar spectral irradiance experiment for the Upper Atmosphere Research Satellites (UARS)

Period	Obligations
09/23/80-06/30/81	FY80: \$139,111 TOTAL: \$139,111
Prin Invest	NASA Tech Officer CASE Category
Rottman, G. J.	GSFC/Donley, J. L. 31-Atmos Sci

NAS 5-26303 **University of Colorado - Boulder** **1873**
Study of the response of upper atmosphere parameters to variation of solar activity (UARS)

Period	Obligations
10/01/80-12/30/81	FY80: \$11,000 TOTAL: \$11,000
Prin Invest	NASA Tech Officer CASE Category
London, J.	GSFC/Reber, C. A. 31-Atmos Sci

NAS 8-31958 **University of Colorado - Boulder** **1874**
Study of geophysical fluid dynamics with electro-hydrodynamics polarization forces

Period	Obligations
03/26/76-08/31/81	FY80: \$65,000 TOTAL: \$295,000
Prin Invest	NASA Tech Officer CASE Category
Toomre, J.	MSFC/Jones, C. T. 39-Env Sci, NEC
Hart, J. F.	MSFC/Fichtl, G. H.

NAS 8-33084 **University of Colorado - Boulder** **1875**
A study of stellar coronae using the HEAO-A spacecraft

Period	Obligations
06/16/78-06/15/79	FY80: TOTAL: \$9,900
Prin Invest	NASA Tech Officer CASE Category
Linsky, J. L.	MSFC/Dailey, C. C. 11-Astronomy
Ayres, T. R.	

NAS 8-33333 **University of Colorado - Boulder** **1876**
A coordinated X-ray, optical and microwave study of the flare stars Proxima Centauri, YZ Canis Minoris and UV Ceti

Period	Obligations
02/15/79-08/14/80	FY80: TOTAL: \$5,440
Prin Invest	NASA Tech Officer CASE Category
Haisch, B. M.	MSFC/Jones, J. P., Jr. 11-Astronomy
Linsky, J. L.	
Slee, O. B.	

NAS 8-33338 **University of Colorado - Boulder** **1877**
Soft X-ray spectroscopy of Hercules X-1

Period	Obligations
02/16/79-11/15/80	FY80: TOTAL: \$9,000
Prin Invest	NASA Tech Officer CASE Category
McCray, R.	MSFC/Jones, J. B., Jr. 11-Astronomy
Boynton, P. E.	
Shull, J. M.	

NAS 8-33342 **University of Colorado - Boulder** **1878**
A coordinated X-ray and ultraviolet study of stellar coronae, transition regions and chromospheres

Period	Obligations
02/16/79-02/15/80	FY80: TOTAL: \$6,560
Prin Invest	NASA Tech Officer CASE Category
Ayres, T. R.	MSFC/Jones, J. B., Jr. 11-Astronomy
Linsky, J. L.	

NGL 06-003-052 **University of Colorado - Boulder** **1879**
Theoretical and experimental research program in physics of planetary atmospheres

Period	Obligations
06/28/66-06/30/81	FY80: \$217,487 TOTAL: \$4,465,954
Prin Invest	NASA Tech Officer CASE Category
Lamont, P. J.	HD-SL/Murphy, R. E. 31-Atmos Sci
	HD-SL/Brunk, W. E.

NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)

NSG 06-003-057 University of Colorado - Boulder 1880
Basic research in solar physics

Period	Obligations
09/05/67-09/30/80	FY80: \$80,000 TOTAL: \$1,143,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Linsky, J. L.	HD-ST/Chipman, F. 13-Physics

NSG 06-003-200 University of Colorado - Boulder 1881
Application of space technology to practical problems such as those currently facing the mountain sections of the state of Colorado

Period	Obligations
07/11/72-04/30/82	FY80 TOTAL: \$825,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Ives, J. D.	HD-ET/Vitale, J. A. 39-Env Sci, NEC

NSG 06-003-127 University of Colorado - Boulder 1882
Data reduction-coordinated experiments

Period	Obligations
08/18/69-09/30/80	FY80 TOTAL: \$996,906
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Barth, C. A.	HD-SL/Murphy, R. F. 31-Atmos Sci
	HD-ET/Boyce, J. M.

NSG 2248 University of Colorado - Boulder 1883
Heterogeneous chemistry Association reactions, cluster formation, and surface phenomena

Period	Obligations
07/01/77-06/30/81	FY80 \$51,000 TOTAL \$181,595
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Castleman, A. W.	ARC/Whitten, R. C. 12-Chemistry
	ARC/Farlow, N. H.

NSG 3181 University of Colorado - Boulder 1884
Effect of contraction on turbulence

Period	Obligations
01/16/78-03/20/80	FY80 TOTAL \$80,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Uberoi, M. S.	13 RC/Groeneweg, J. F. 41-Aero Engr

NSG 5103 University of Colorado - Boulder 1885
Rocket research in the ultraviolet airglow and aurora of planetary atmospheres

Period	Obligations
02/01/76-03/31/81	FY80 \$200,000 TOTAL \$949,811
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Barth, C. A.	GSFC/Gu... .. J. 19-Phys Sci, NEC
Hathaway, D. D.	HD-SL/Murphy, R.

NSG 5153 University of Colorado - Boulder 1886
Research of observed and theoretical variations of atmospheric ozone

Period	Obligations
01/17/77-01/31/81	FY80 \$81,733 TOTAL \$287,898
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
London, J.	GSFC/Reber, C. A. 31-Atmos Sci

NSG 5178 University of Colorado - Boulder 1887
Rocket research in solar ultraviolet spectroscopy

Period	Obligations
06/01/77-12/10/80	FY80: \$145,000 TOTAL: \$533,590
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Rottman, G. T.	GSFC/Bissell, E. E. 13-Physics
Chipman, E.	HD-ST/Bohlin, J. D.
Orrall, F. Q.	

NSG 5300 University of Colorado - Boulder 1888
Research of stellar wind velocity in alpha cam using ultraviolet data from the International Ultraviolet Explorer (IUE)

Period	Obligations
09/15/78-11/15/80	FY80: \$31,300 TOTAL: \$41,297
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Snow, T. P.	GSFC/Bogges, A. 11-Astronomy
Shull, J. M.	

NSG 5303 University of Colorado - Boulder 1889
Ultraviolet measurements with high spectral resolution

Period	Obligations
09/15/78-11/14/81	FY80: \$449,989 TOTAL: \$650,596
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Snow, T. P.	GSFC/Guidotti, J. 11-Astronomy
McClintock, W. I.	

NSG 5318 University of Colorado - Boulder 1890
Supergranulation velocity fields and their relation to magnetically active regions

Period	Obligations
01/15/79-02/14/81	FY80: \$35,439 TOTAL: \$40,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Gebbie, K. B.	GSFC/Donley, J. I. 31-Atmos Sci

NSG 5355 University of Colorado - Boulder 1891
Analysis of interstellar and circumstellar absorption line profiles

Period	Obligations
06/01/79-06/30/81	FY80 \$13,624 TOTAL: \$28,229
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Snow, T. P., Jr.	GSFC/Wende, C. D. 11-Astronomy

NSG 5365 University of Colorado - Boulder 1892
Studies for atomic intersystem lines in interstellar gas and stellar winds

Period	Obligations
06/01/79-05/31/80	FY80 TOTAL: \$3,580
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Shull, J. M.	GSFC/Bogges, A. 11-Astronomy

NSG 5372 University of Colorado - Boulder 1893
Theoretical studies of odd nitrogen in the mesosphere and lower thermosphere

Period	Obligations
06/01/79-11/30/80	FY80 \$50,000 TOTAL: \$78,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Rusch, D. W.	GSFC/Reed, F. I. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NSG 7128 University of Colorado - Boulder 1894
Studies of X-ray ultraviolet and optical emission from galactic X-ray sources

Period	Obligations
03/01/75-09/30/81	FY80: \$62,728 TOTAL: \$201,728
Prin Invest	NASA Tech Officer CASE Category
McCray, R.	HD-SC/Kaluzienski, L. J. 11-Astronomy HD-SC/Holt, S. S.

NSG 7430 University of Colorado - Boulder 1901
Theoretical calculations of spectral features in the expanding envelopes of early-type stars

Period	Obligations
03/01/78-02/29/80	FY80: TOTAL: \$21,646
Prin Invest	NASA Tech Officer CASE Category
Conti, P. S.	HD-SC/Roman, N. G. 11-Astronomy HD-SC/Rosendhal, J. D.

NSG 7165 University of Colorado - Boulder 1895
Theoretical studies of the solar corona and chromosphere

Period	Obligations
07/01/75-09/30/79	FY80: TOTAL: \$128,987
Prin Invest	NASA Tech Officer CASE Category
Chipman, F.	HD-ST/Bohlin, J. D. 13-Physics

NSG 7459 University of Colorado - Boulder 1902
Development and test of multi-anode microchannel array detector system

Period	Obligations
06/01/78-05/31/81	FY80 \$280,419 TOTAL: \$778,078
Prin Invest	NASA Tech Officer CASE Category
Timothy, G.	HD-SC/Weiler, F. J. 13-Physics HD-SC/Bogges, N. W.

NSG 7231 University of Colorado - Boulder 1896
A rocket program to measure minor neutral species in the Earth's atmosphere from 30 km to 110 km

Period	Obligations
04/01/76-09/30/80	FY80: \$101,334 TOTAL: \$401,340
Prin Invest	NASA Tech Officer CASE Category
Thomas, R. J.	HD-EB/Toth, R. A. 31-Atmos Sci
Rusch, D. W.	HD-FB/Seals, R. K.

NSG 7477 University of Colorado - Boulder 1903
High-resolution spectrophotometric observations of interstellar absorption lines

Period	Obligations
07/01/78-06/30/79	FY80: TOTAL: \$24,413
Prin Invest	NASA Tech Officer CASE Category
Snow, F. P.	HD-SC/Roman, N. G. 11-Astronomy HD-SC/Rosendhal, J. D.

NSG 7287 University of Colorado - Boulder 1897
Study of the solar corona using radio observation

Period	Obligations
07/01/76-10/31/80	FY80 \$50,000 TOTAL: \$142,000
Prin Invest	NASA Tech Officer CASE Category
Dulk, G. A.	HD-ST Chipman, F. 13-Physics

NSG 7507 University of Colorado - Boulder 1904
X-ray emission, electron acceleration, and related flare problems

Period	Obligations
10/01/78-09/30/80	FY80: \$48,170 TOTAL: \$93,170
Prin Invest	NASA Tech Officer CASE Category
Smith, D. F.	HD-ST Chipman, F. 13-Physics

NSG 7291 University of Colorado - Boulder 1898
Research in solar physics with emphasis on empirical non-equilibrium thermodynamics

Period	Obligations
09/01/76-12/31/80	FY80 \$26,333 TOTAL: \$102,333
Prin Invest	NASA Tech Officer CASE Category
Thomas, R. N.	HD-ST Chipman, F. 13-Physics

NSG 7511 University of Colorado - Boulder 1905
Basic research in solar physics. Energy transport in the solar envelope and atmosphere

Period	Obligations
10/01/78-09/30/80	FY80 \$55,000 TOTAL: \$105,000
Prin Invest	NASA Tech Officer CASE Category
Gebbie, K. B.	HD-ST Chipman, F. 13-Physics

NSG 7319 University of Colorado - Boulder 1899
Nutation and polar motion of the Earth

Period	Obligations
03/01/77-09/30/79	FY80 TOTAL: \$84,297
Prin Invest	NASA Tech Officer CASE Category
Smith, M. I.	HD-ST Flinn, F. A. 32-Geological Sci

NSG 7344 University of Colorado - Boulder 1900
Construction of a three-wavelength electromagnetic distance-measuring system

Period	Obligations
05/01/77-04/30/79	FY80 TOTAL: \$100,000
Prin Invest	NASA Tech Officer CASE Category
Levine, J.	HD-ST Strickland, A. T. 13-Physics

NSG 7559 University of Colorado - Boulder 1906
Measurement of solar spectral irradiances at wavelengths between 40 and 3100 angstroms

Period	Obligations
03/01/79-12/31/80	FY80 \$271,819 TOTAL: \$321,819
Prin Invest	NASA Tech Officer CASE Category
Timothy, J. G.	HD-EB/Toth, R. A. 31-Atmos Sci
Mount, G. H.	HD-EB/Tilford, S. G.

NASA'S UNIVERSITY PROGRAM **COLORADO (Continued)**

NSG 1405 **University of Denver** **1920**
Theoretical simulations of solar spectra in the middle ultraviolet and visible for atmospheric trace constituents measurements

Period	Obligations	
03/15/77-05/14/80	FY80:	TOTAL: \$114,517
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goldman, A.	LARC/Goad, J. H.	31-Atmos Sci
Murcay, D. G.	LARC/McCormick, M. P.	

NSG 1432 **University of Denver** **1921**
Ground monitoring of atmospheric constituents by high resolution infrared solar spectroscopy

Period	Obligations	
07/11/77-11/10/80	FY80 \$59,992	TOTAL: \$219,866
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Murcay, D. G.	LARC/Orr, H. D.	39-Env Sci, NEC
	LARC/Russell, J. M., III	

NSG 5367 **University of Denver** **1922**
Velocity fields and spectrum peculiarities in Beta Cephei stars

Period	Obligations	
06/01/79-11/30/80	FY80:	TOTAL: \$16,100
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lesh, J. R.	GSFC/Bogges, A.	11-Astronomy

NAG 2-2 **University of Southern Colorado** **1923**
Investigation of distributed microcomputer methods for high authority auto flight systems

Period	Obligations	
10/01/79-09/30/80	FY80: \$76,464	TOTAL: \$76,464
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dunn, W. R.	ARC/Meyer, G.	49-Engr, NEC

NCC 2-41 **University of Southern Colorado** **1924**
Technology research for strapdown inertial experiments

Period	Obligations	
10/01/79-08/31/81	FY80: \$107,948	TOTAL: \$107,948
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carestia, R. A.	ARC/Hruby, R. J.	42-Astro Engr

NCC 2-91 **University of Southern Colorado** **1925**
Investigation of distributed microcomputer methods for high authority auto flight systems

Period	Obligations	
10/01/80-09/30/81	FY80: \$30,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dunn, W. R.	ARC/Meyer, G.	49-Engr, NEC

NSG 9051 **University of Southern Colorado** **1926**
Electron microprobe study of lunar and planetary zoned plagioclase feldspars

Period	Obligations	
02/01/77-03/31/81	FY80:	TOTAL: \$76,529
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, R. K.	ISL/Lofgren, G.	19-Phys Sci, NEC

CONNECTICUT

NCC 5-6 **Fairfield University** **1927**
Measurement of hydroxyl temperature in the upper atmosphere

Period	Obligations	
09/01/79-09/30/80	FY80:	TOTAL: \$8,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McElaney, J. H.	GSFC/Heath, D. F.	31-Atmos Sci

NGR 07-010-002 **Fairfield University** **1928**
Investigation of energy deposition processes in the upper atmosphere, and the interaction between the mesosphere and the thermosphere

Period	Obligations	
04/24/68-03/31/79	FY80:	TOTAL: \$57,028
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McElaney, J. H.	GSFC/Heath, D. F.	31-Atmos Sci
Khadgavi, A.		

NAG 3-64 **University of Connecticut** **1929**
Droplet impact dynamics and heat transfer

Period	Obligations	
06/01/80-06/01/81	FY80: \$45,942	TOTAL: \$45,942
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bowley, W. W.	LERC/Olsen, W. A.	41-Aero Engr
Rivard, F. E.		

NASW 3191 **University of Connecticut** **1930**
Operation of an industrial applications center

Period	Obligations	
01/01/78-12/31/80	FY80: \$457,468	TOTAL: \$507,468
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilde, D.	HD-ET/Bivins, R. G.	99-Multi-Discip

NSG 3238 **University of Connecticut** **1931**
Turbine endwall two-cylinder program

Period	Obligations	
01/02/79-01/01/82	FY80:	TOTAL: \$99,410
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Langston, L. S.	LERC/Goldman, L. J.	46-Mech Engr

NSG 5075 **University of Connecticut** **1932**
Modeling the terrestrial hydrology of the global atmosphere

Period	Obligations	
08/17/75-02/28/81	FY80: \$66,195	TOTAL: \$284,055
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bock, P.	GSFC/Halem, M.	31-Atmos Sci
Lin, J. D.		

**NASA'S UNIVERSITY PROGRAM
CONNECTICUT (Continued)**

NSG 5346 University of Connecticut 1933
Hydro-meteorological modeling of soil moisture and interactive moisture transport processes

Period	Obligations	
05/01/79-08/31/81	FY80: \$43,015	TOTAL: \$83,355
Prin Invest	NASA Tech Officer	CASE Category
Lin, J. D.	GSFC/Halem, M.	31-Atmos Sci
Bock, P.		

NSG 7450 University of Connecticut 1934
Factors affecting assimilatory nitrate reduction by prokaryotes

Period	Obligations	
06/01/78-01/30/82	FY80: \$90,635	TOTAL: \$162,886
Prin Invest	NASA Tech Officer	CASE Category
Leadbetter, E. R.	HD-SB/Devincenzi, D. L.	51-Biological Sci

NAG 5-59 Wesleyan University 1935
Distribution and kinematics of interstellar gas

Period	Obligations	
06/01/80-05/31/81	FY80: \$3,312	TOTAL: \$3,312
Prin Invest	NASA Tech Officer	CASE Category
Herbst, W.	GSFC/Gull, T. R.	11-Astronomy

NAG 8-335 Wesleyan University 1936
Optical and infrared studies of stars in reflection nebulae

Period	Obligations	
01/15/80-01/14/81	FY80: \$13,707	TOTAL: \$13,707
Prin Invest	NASA Tech Officer	CASE Category
Herbst, W.	MSFC/Warner, J. R.	11-Astronomy

NAG 1-37 Yale University 1937
Rotational coherent anti-Stokes Raman spectroscopy (CARS)

Period	Obligations	
03/01/80-02/28/81	FY80: \$60,000	TOTAL: \$60,000
Prin Invest	NASA Tech Officer	CASE Category
Chang, R. K.	LARC/Hoppe, J. C.	13-Physics
	LARC/Hunter, W. W.	

NAG 2-15 Yale University 1938
Experimental and theoretical study of heteromolecular nucleation of vapors occurring in the atmosphere

Period	Obligations	
01/01/80-12/31/80	FY80: \$59,000	TOTAL: \$59,000
Prin Invest	NASA Tech Officer	CASE Category
Wegner, P. P.	ARC/Toon, O. B.	31-Atmos Sci

NAS 8-33572 Yale University 1939
Experimental test for violations of the equivalence principle by weak interactions

Period	Obligations	
09/05/79-09/04/80	FY80:	TOTAL: \$7,849
Prin Invest	NASA Tech Officer	CASE Category
Parker, P. D.	MSFC/Eby, P.	11-Astronomy
	MSFC/Decher, R.	

NASW 3430 Yale University 1940
Conduct a conference entitled 'The Space Age: How do You Like it so Far?'

Period	Obligations	
09/25/80-02/28/81	FY80: \$18,445	TOTAL: \$18,445
Prin Invest	NASA Tech Officer	CASE Category
Theodore, E.	HD-LH/Roland, A.	73-History
	HD-LH/Wright, M. D.	

NGI 07-004-005 Yale University 1941
Low-power, low-speed data storage and processing equipment

Period	Obligations	
01/01/71-02/28/82	FY80:	TOTAL: \$896,619
Prin Invest	NASA Tech Officer	CASE Category
Barker, R. C.	GSFC/Schaefer, D.	45-Elec Engr

NGI 07-004-043 Yale University 1942
Chemical reactions in the electron-volt region

Period	Obligations	
10/26/65-09/30/79	FY80:	TOTAL: \$501,744
Prin Invest	NASA Tech Officer	CASE Category
Cross, R. J., Jr.	HD-SL/Murphy, R. E.	31-Atmos Sci
	HD-SL/Brunk, W. E.	

NSG 2185 Yale University 1943
Early detection of acute respiratory infections

Period	Obligations	
10/01/76-11/30/80	FY80: \$45,000	TOTAL: \$140,000
Prin Invest	NASA Tech Officer	CASE Category
Evans, A. S.	ARC/Mandel, A.D.	56-Medical Sciences
Niederman, J. C.		

NSG 3107 Yale University 1944
Deposition of condensible impurities on surfaces immersed in hot gases

Period	Obligations	
07/15/76-07/14/81	FY80: \$37,155	TOTAL: \$157,140
Prin Invest	NASA Tech Officer	CASE Category
Rosner, D. E.	LERC/Kohl, F. J.	47-Materials Engr
	LERC/Stearns, C. A.	

NSG 3169 Yale University 1945
Experimentation studies of the formation/ deposition of sodium sulfate in/from combustion gases

Period	Obligations	
11/15/77-11/14/80	FY80: \$55,000	TOTAL: \$149,000
Prin Invest	NASA Tech Officer	CASE Category
Rosner, D. E.	LERC/Kohl, F. J.	12-Chemistry
	LERC/Stearns, C. A.	

NSG 7290 Yale University 1946
Membranes and circadian rhythms in plants

Period	Obligations	
10/01/76-09/30/80	FY80: \$50,000	TOTAL: \$189,420
Prin Invest	NASA Tech Officer	CASE Category
Galston, A. W.	HD-SB/Halstead, T. W.	51-Biological Sci
	HD-SB/Geib, D. S.	

NASA'S UNIVERSITY PROGRAM DELAWARE

DELAWARE

NAG 5-107 University of Delaware 1947
Research relative to a climatically-derived global soil moisture data set

Period	Obligations	
09/15/80-09/14/81	FY80: \$73,233	TOTAL: \$73,233
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Willmott, C. J.	GSFC/Shukla, J.	31-Atmos Sci

NAS 5-25934 University of Delaware 1948
Application of remote sensing to the management of Delaware's coastal resources

Period	Obligations	
11/14/79-07/14/80	FY80: \$6,000	TOTAL: \$6,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Klemas, V	GSFC/Gervin, J. C	39-Env Sci, NEC

NAS 5-26254 University of Delaware 1949
University of Delaware LANDSAT applications technical assistance services

Period	Obligations	
08/21/80-08/20/81	FY80: \$14,021	TOTAL: \$14,021
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Klemas, V	GSFC/Gervin, J. C	39-Env Sci, NEC

NAS 5-26273 University of Delaware 1950
Investigation of the stability of naturally occurring glasses

Period	Obligations	
09/01/80-09/27/81	FY80: \$24,344	TOTAL: \$24,344
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Glass, W. P	GSFC/Alterescu, S	43-Chem Engr
	GSFC/Okeefe, J	

NSG 1304 University of Delaware 1951
Damage repair technology in composite materials

Period	Obligations	
05/01/76-04/30/81	FY80: \$70,000	TOTAL: \$291,656
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pipes, R. B.	LARC/Deaton, J. W	46-Mech Engr
Wilson, D. W	LARC/Baucom, R. M	

NSG 1409 University of Delaware 1952
Elevated temperature bolted joint test technology in composite materials

Period	Obligations	
04/01/77-05/31/80	FY80	TOTAL: \$115,040
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pipes, R. B	LARC/Garcia, R	42-Astro Engr
Wilson, D. W	LARC/Cooper, P. A	

NSG 3184 University of Delaware 1953
Heat storage in alloy transformation

Period	Obligations	
07/01/78-11/30/80	FY80:	TOTAL: \$183,783
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Birchenall, C. E.	LERC/Vernon, R. W.	47-Materials Engr

NSG 3189 University of Delaware 1954
Inlet flow distortion in turbomachinery

Period	Obligations	
04/01/78-11/31/78	FY80	TOTAL: \$25,154
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Seidel, B. S	LERC/Adamezyk, J. J.	41-Aero Engr

NSG 3270 University of Delaware 1955
Effects of distorted inflow entering a fan in a tilt nacelle

Period	Obligations	
05/01/79-11/01/80	FY80:	TOTAL: \$29,547
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Seidel, B. S.	LERC/Farrell, C. A., Jr	41-Aero Engr

NSG 5144 University of Delaware 1956
Ultraviolet studies of heavy-element abundances in stars

Period	Obligations	
12/01/76-11/30/79	FY80:	TOTAL: \$905
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shipman, H. L.	GSFC/Kupperian, J. L., Jr	11-Astronomy

DISTRICT OF COLUMBIA

NAG 3-94 The Catholic University of America 1957
Rapid determination of aviation fuel freezing points

Period	Obligations	
10/01/80-09/30/81	FY80: \$47,735	TOTAL: \$47,735
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moynihan, C. T	LERC/Friedman, R.	43-Chem Engr

NAS 5-26226 The Catholic University of America 1958
Development of instrumentation for measurement of scattering from mirrors and black surfaces

Period	Obligations	
06/30/80-11/30/81	FY80: \$20,000	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lally, J. F	GSFC/Heaney, J. B	45-Elec Engr
Meister, R		

NSG 09-005-063 The Catholic University of America 1959
Interaction of the solar wind with the Moon

Period	Obligations	
04/15/69-05/31/81	FY80: \$37,000	TOTAL: \$304,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Whang, Y. C	HD-ST/Hedin, A. F	13-Physics
	HD-ST/Schmerling, F. R	

NASA'S UNIVERSITY PROGRAM **DISTRICT OF COLUMBIA (Continued)**

NGT 09-005-800 The Catholic University of America 1960
Graduate student researchers program

Period	Obligations	
09/01/80-08/31/81	FY80: \$7,830	TOTAL: \$7,830
Prin Invest	NASA Tech Officer	CASE Category
Werntz, C.	GSFC/Jones, F. C.	13-Physics

NSG 5066 The Catholic University of America 1961
Research of solar hard X-rays and gamma rays

Period	Obligations	
05/01/75-06/31/81	FY80: \$15,157	TOTAL: \$103,751
Prin Invest	NASA Tech Officer	CASE Category
Werntz, C.	GSFC/Dennis, B. R.	13-Physics
	GSFC/Jones, F. C.	

NSG 5111 The Catholic University of America 1962
Research of properties of material in the submillimeter wave region

Period	Obligations	
09/01/76-08/31/81	FY80:	TOTAL: \$70,647
Prin Invest	NASA Tech Officer	CASE Category
Kelley, G. I	GSFC/McAvoy, N	13-Physics
Meister, R.		

NSG 5173 The Catholic University of America 1963
Atom-molecule reactions of chemical importance in the stratosphere

Period	Obligations	
06/01/77-05/31/81	FY80: \$45,551	TOTAL: \$169,737
Prin Invest	NASA Tech Officer	CASE Category
Hunt, J. B	GSFC/Nava, D. F	12-Chemistry
Michael, J. V		

NSG 7422 The Catholic University of America 1964
Expansion of the solar wind from coronal holes

Period	Obligations	
04/01/78-03/31/81	FY80: \$44,000	TOTAL: \$124,000
Prin Invest	NASA Tech Officer	CASE Category
Whang, Y. C	HD-ST/Chipman, E.	13-Physics

NAG 1-13 George Washington University 1965
Program of research in helicopter aerodynamic theory

Period	Obligations	
12/01/79-11/30/80	FY80: \$25,721	TOTAL: \$25,721
Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H	LARC/Demaraiz, R. N	41-Aero Engr
Runyan, H. L.	LARC/Reed, W. H	

NAG 2-40 George Washington University 1966
Transonic airfoil-design by optimization methods in the Joint Institute for Advancement of Flight Sciences at NASA-Langley Research Center

Period	Obligations	
06/01/80-05/30/81	FY80: \$15,455	TOTAL: \$15,455
Prin Invest	NASA Tech Officer	CASE Category
Hafez, M. M.	ARC/Chapman, G. T	41-Aero Engr
	ARC/Hicks, R. M	

NAG 5-83 George Washington University 1967
Application of discrete random media techniques for active and passive modeling of subsurface media

Period	Obligations	
07/01/80-06/30/81	FY80: \$25,003	TOTAL: \$25,003
Prin Invest	NASA Tech Officer	CASE Category
Lang, R. H.	GSFC/Meneghini, R.	45-Elec Engr

NAS 1-14605 George Washington University 1968
Experimental and analytical engineering and applied science support of Langley Research Center programs

Period	Obligations	
09/02/76-09/01/81	FY80: \$30,748	TOTAL: \$203,881
Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Duberg, J. E.	41-Aero Engr
Whitesides, J. L.	LARC/Erickson, W. D.	

NAS 5-24431 George Washington University 1969
Concatenated coding system

Period	Obligations	
02/22/78-08/31/79	FY80:	TOTAL: \$21,658
Prin Invest	NASA Tech Officer	CASE Category
Helgert, H. J	GSFC/Rende, J. V	45-Elec Engr
	GSFC/Latos, S. C.	

NASW 3165 George Washington University 1970
Scientific communication in planetary biology and bioscience

Period	Obligations	
04/17/78-06/15/81	FY80: \$53,000	TOTAL: \$150,977
Prin Invest	NASA Tech Officer	CASE Category
Waters, F.	HD-SB/Halstead, T. W.	
	HD-SB/Geib, D. S	59-Life Sci, NEC

NCC 1-1 George Washington University 1971
Data reduction techniques for a Pressure Modulator Radiometer (PMR)

Period	Obligations	
04/01/79-02/28/81	FY80:	TOTAL: \$4,589
Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H	LARC/Orr, H. D	31-Atmos Sci
Burkstrom, B. R.	LARC/Reichle, H. G., Jr	

NCC 1-14 George Washington University 1972
Aeroacoustics research program in Joint Institute for Advancement of Flight Services (JIAFS)

Period	Obligations	
05/15/79-01/31/81	FY80: \$87,259	TOTAL: \$176,470
Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H	LARC/Lansing, D. L	41-Aero Engr
	LARC/Hardin, J. C	

**NASA'S UNIVERSITY PROGRAM
DISTRICT OF COLUMBIA (Continued)**

NCC 1-19 George Washington University 1973
A research program in atmospheric science

Period	Obligations	
07/01/79-05/31/81	FY80: \$74,660	TOTAL: \$167,755
Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Callis, L. B.	31-Atmos Sci
	LARC/Tolson, R. H.	

NCC 1-24 George Washington University 1974
Programs of research in flight sciences

Period	Obligations	
08/15/79-01/31/81	FY80: \$72,531	TOTAL: \$191,322
Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Whitehead, A. H.	41-Aero Engr
Whitesides, J. L.		

NCC 1-27 George Washington University 1975
Cooperative graduate program in the flight sciences

Period	Obligations	
08/15/79-10/31/80	FY80:	TOTAL: \$53,319
Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Erickson, W. D.	41-Aero Engr

NCC 1-29 George Washington University 1976
Research program in flight dynamics in the Joint Institute for Advancement of Flight Sciences (JIAFS) at the NASA Langley Research Center

Period	Obligations	
12/01/79-11/30/80	FY80: \$61,830	TOTAL: \$61,830
Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Schubert, T.	41-Aero Engr
	LARC/Tolson, R. H.	

NCC 1-36 George Washington University 1977
Research program in materials science

Period	Obligations	
06/01/80-12/31/80	FY80: \$173,601	TOTAL: \$173,601
Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Schwartz, B. J.	47-Materials Engr

NCC 1-39 George Washington University 1978
Program of research in environmental modeling

Period	Obligations	
04/01/80-11/30/80	FY80: \$65,000	TOTAL: \$65,000
Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Callis, L. B.	31-Atmos Sci
	LARC/Tolson, R. H.	

NCC 1-44 George Washington University 1979
Research program in aeronautics

Period	Obligations	
09/01/79-07/31/82	FY80: \$143,525	TOTAL: \$143,525
Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Erickson, W. D.	41-Aero Engr
Whitesides, J. L.		

NGR 09-010-074 George Washington University 1980
Programs of research in flight sciences

Period	Obligations	
04/01/71-07/31/80	FY80:	TOTAL: \$1,187,084
Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Bobbitt, P. J.	41-Aero Engr
	LARC/Mulac, R. W.	

NGR 09-010-078 George Washington University 1981
Research programs in structures and dynamics

Period	Obligations	
01/06/72-11/30/80	FY80: \$187,234	TOTAL: \$1,489,657
Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/McComb, H. G.	41-Aero Engr
	LARC/Anderson, R. A.	

NGR 09-010-085 George Washington University 1982
Aircraft noise reduction research

Period	Obligations	
02/21/73-06/30/81	FY80:	TOTAL: \$690,128
Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Morgan, H. G.	41-Aero Engr

NSG 09-010-096 George Washington University 1983
Research program in microwave remote sensing

Period	Obligations	
09/01/71-11/30/80	FY80:	TOTAL: \$174,639
Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Croswell, W. F.	45-Elec Engr
	LARC/Schrader, J. H.	

NSG 1026 George Washington University 1984
A graduate research program in environmental modeling

Period	Obligations	
03/21/74-03/31/80	FY80:	TOTAL: \$623,422
Prin Invest	NASA Tech Officer	CASE Category
Rogerson, A. J.	LARC/Callis, L. B.	31-Atmos Sci
Brown, N. B., Jr.	LARC/Tolson, R. H.	

NSG 1110 George Washington University 1985
Antenna and wave propagation applied to avionics systems

Period	Obligations	
10/01/74-12/31/80	FY80:	TOTAL: \$159,194
Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Croswell, W. F.	45-Elec Engr
	LARC/Gilbreath, M. C.	

NSG 1289 George Washington University 1986
Research program in improved fracture toughness determination for aircraft structural materials

Period	Obligations	
03/01/76-12/31/80	FY80: \$68,163	TOTAL: \$282,627
Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Roderick, G. L.	47-Materials Engr
Jones, D. L.	LARC/Whitcomb, J. D.	

NASA'S UNIVERSITY PROGRAM **DISTRICT OF COLUMBIA (Continued)**

NSG 1555 **George Washington University** **1987**
Studies of radiative transfer in the Earth's atmosphere with emphasis on the inference of the radiation budget

Period	Obligations
08/01/78-07/31/81	FY80: TOTAL: \$64,931
Prin. Invest.	NASA Tech. Officer CASE Category
Liebowitz, H.	LARC/Smith, G. L. 31-Atmos Sci
Barkstrom, B. R.	LARC/Suttles, J. T.

NSG 1585 **George Washington University** **1983**
Research program in laminar flow control

Period	Obligations
11/15/78-11/14/80	FY80: \$70,775 TOTAL: \$133,638
Prin. Invest.	NASA Tech. Officer CASE Category
Liebowitz, H.	LARC/Kemp, W. B., Jr. 41-Aero Engr
	LARC/Bobbitt, P. J.

NSG 1604 **George Washington University** **1989**
Determination of load sequence effects on the degradation and failure of composite materials

Period	Obligations
03/16/79-08/31/80	FY80 TOTAL: \$49,997
Prin. Invest.	NASA Tech. Officer CASE Category
Lang, J. N.	LARC/O'Brien, T. K. 47-Materials Engr
Jones, D. I.	LARC/Roderick, G. I.

NSG 5109 **George Washington University** **1990**
Decoding and performance of error correcting codes

Period	Obligations
07/16/76-08/31/81	FY80: \$31,769 TOTAL: \$19,583
Prin. Invest.	NASA Tech. Officer CASE Category
Helgert, H. J.	GSFC/Morales, J. C. 49-Engr. NEC

NSG 5282 **George Washington University** **1991**
Comparison of passive and active microwave remote sensing

Period	Obligations
08/01/78-12/31/79	FY80 TOTAL: \$19,998
Prin. Invest.	NASA Tech. Officer CASE Category
Lang, R. H.	GSFC/LeVine, D. M. 45-Elec Engr

NSW 3152 **Georgetown University** **1992**
Potential impacts of space utilization

Period	Obligations
04/01/78-05/01/79	FY80 TOTAL: \$15,000
Prin. Invest.	NASA Tech. Officer CASE Category
Cheston, T. S.	HD-MT/Puttkamer, J. V. 99-Multi-Discip

NSW 3397 **Georgetown University** **1993**
Guide for the teaching and student research of the applications of shuttle derived space utilization technologies

Period	Obligations
06/11/80-06/10/81	FY80: \$29,996 TOTAL: \$29,996
Prin. Invest.	NASA Tech. Officer CASE Category
Cheston, T. S.	HD-LF Tuttle, F. B. 79-Soc Sci, NEC
	HD-MT/Puttkamer, J. V.

NAG 1-23 **Howard University** **1994**
Effect of load introduction on graphite epoxy compression specimens

Period	Obligations
01/01/80-12/31/80	FY80: \$21,144 TOTAL: \$21,144
Prin. Invest.	NASA Tech. Officer CASE Category
Reiss, R.	LARC/Clark, R. K. 47-Materials Engr
	LARC/Lisagor, W. B.

NAG 5-17 **Howard University** **1995**
Two photon excitation as a tool for atmospheric and kinetic investigation

Period	Obligations
03/01/80-02/28/81	FY80: \$57,529 TOTAL: \$57,529
Prin. Invest.	NASA Tech. Officer CASE Category
Halpern, J. B.	GSFC/Miller, G. F. 13-Physics

NAG 5-25 **Howard University** **1996**
Dynamic characteristics of linear hydrostatic gas bearings

Period	Obligations
04/01/80-03/31/81	FY80: \$35,000 TOTAL: \$35,000
Prin. Invest.	NASA Tech. Officer CASE Category
Watkins, C. B.	GSFC/Cygnarowicz, T. A. 46-Mech Engr
Fronini, F. F.	GSFC/Sherman, A.

NAG 5-65 **Howard University** **1997**
Cometary observations with the International Ultraviolet Explorer

Period	Obligations
06/01/80-06/30/81	FY80: \$7,230 TOTAL: \$7,230
Prin. Invest.	NASA Tech. Officer CASE Category
Jackson, W. M.	GSFC/Boggess, A. 11-Astronomy
Delsemme, A. H.	
Donn, B. D.	

NAG 5-79 **Howard University** **1998**
Research relative to optical constants and properties of material in the extreme ultraviolet

Period	Obligations
06/15/80-06/14/81	FY80: \$47,355 TOTAL: \$47,355
Prin. Invest.	NASA Tech. Officer CASE Category
Catchings, R. M.	GSFC/Catchings, R. M. 13-Physics

NAG 8-371 **Howard University** **1999**
X-ray observations of runaway stars

Period	Obligations
08/15/80-08/14/81	FY80: \$6,438 TOTAL: \$6,438
Prin. Invest.	NASA Tech. Officer CASE Category
Kumar, C. K.	MSFC/Stone, J. 11-Astronomy

NAG 10-2 **Howard University** **2000**
Feasibility study of using field effect transistors to measure electrical field strength

Period	Obligations
05/15/80-05/14/81	FY80: \$39,815 TOTAL: \$39,815
Prin. Invest.	NASA Tech. Officer CASE Category
Wang, Y. C.	NSC/Patel, W. T. 13-Physics

**NASA'S UNIVERSITY PROGRAM
DISTRICT OF COLUMBIA (Continued)**

NAS 5-23799 **Howard University** **2001**
Quality assurance system in clinical practice settings
Period Obligations
12/07/76-11/30/81 FY80: \$53,491 TOTAL: \$142,791
Prin Invest NASA Tech Officer CASE Category
Chang, P. GSFC/Alterescu, S. 56-Medical Sciences

NAS 5-24242 **Howard University** **2002**
Study of aerodynamics for sounding rockets
Period Obligations
07/01/77-03/01/81 FY80: TOTAL: \$117,877
Prin Invest NASA Tech Officer CASE Category
Fan, D. GSFC/Barrowman, J. S. 41-Aero Engr
GSFC/Mayo, E. E

NAS 5-24251 **Howard University** **2003**
Study of flexible body interaction
Period Obligations
08/08/77-12/08/80 FY80: TOTAL: \$19,980
Prin Invest NASA Tech Officer CASE Category
Choudhury, A. K. GSFC/Hui, P. S. 49-Engr, NEC

NAS 5-25185 **Howard University** **2004**
Study of tectites and other space related glasses
Period Obligations
08/17/78-08/05/81 FY80: \$60,000 TOTAL: \$110,000
Prin Invest NASA Tech Officer CASE Category
Thorpe, A. M. GSFC/Okeefe, J. 39-Env Sci, NEC
GSFC/Alterescu, S.

NAS 5-26019 **Howard University** **2005**
Microwave circuit design
Period Obligations
02/01/80-02/01/81 FY80: \$63,321 TOTAL: \$63,321
Prin Invest NASA Tech Officer CASE Category
Chowdhary, R. GSFC/Santarpi, D. E. 45-Elec Engr
GSFC/Chrissotimos, N. G.

NAS 5-29 **Howard University** **2006**
Godard introduction to engineering careers
Period Obligations
06/01/78-06/30/81 FY80: \$18,440 TOTAL: \$45,620
Prin Invest NASA Tech Officer CASE Category
Cox, F. L. GSFC/Chapman, J. W. 49-Engr, NEC

NAS 5-91 **Howard University** **2007**
Prefreshmen and cooperative education program
Period Obligations
06/01/78-06/30/81 FY80: \$25,000 TOTAL: \$75,000
Prin Invest NASA Tech Officer CASE Category
Cox, F. L. GSFC/Chapman, J. W. 49-Engr, NEC

NGR 09-011-057 **Howard University** **2008**
Electron spectroscopy
Period Obligations
04/01/74-07/31/81 FY80: \$3,000 TOTAL: \$37,840
Prin Invest NASA Tech Officer CASE Category
Tsang, T. GSFC/Yin, L. L. 13-Physics

NGT 09-011-060 **Howard University** **2009**
Summer faculty fellowship program in research
Period Obligations
01/01/78-03/31/81 FY80: \$190,155 TOTAL: \$329,605
Prin Invest NASA Tech Officer CASE Category
Fan, D. HD-LU/Carter, C. H. 99-Multi-Discip

NSG 1320 **Howard University** **2010**
Graduate research program in advanced aerospace structures
Period Obligations
06/29/76-05/31/81 FY80: \$50,020 TOTAL: \$161,720
Prin Invest NASA Tech Officer CASE Category
Jones, I. W. LARC/Walz, J. 42-Astro Engr
LARC/Anderson, M.

NSG 1414 **Howard University** **2011**
The dynamics and control of large flexible space structures
Period Obligations
05/16/77-05/15/81 FY80: \$68,278 TOTAL: \$210,954
Prin Invest NASA Tech Officer CASE Category
Bainum, P. M. LARC/Hammer, H. A. 49-Engr, NEC
Kumar, V. K.
Reddy, A. S.

NSG 3071 **Howard University** **2012**
Laser induced photoluminescence studies of primary photochemical production processes of cometary radicals
Period Obligations
08/01/75-03/31/81 FY80: \$15,000 TOTAL: \$246,625
Prin Invest NASA Tech Officer CASE Category
Jackson, W. M. HD-SL/Murphy, R. E. 12-Chemistry
HD-SL/Brunk, W. E.

NSG 5158 **Howard University** **2013**
Research of microwave semiconductor devices
Period Obligations
02/01/77-04/30/81 FY80: \$160,000 TOTAL: \$609,800
Prin Invest NASA Tech Officer CASE Category
DeLoatch, E. M. GSFC/Alcorn, G. E. 13-Physics
Chowdhary, R.

NSG 5186 **Howard University** **2014**
Research in space sciences
Period Obligations
07/01/77-11/30/79 FY80: TOTAL: \$150,000
Prin Invest NASA Tech Officer CASE Category
Wallace, W. J. GSFC/Okeefe, J. A. 13-Physics
Chung, D.
Tsang, T.

**NASA'S UNIVERSITY PROGRAM
DISTRICT OF COLUMBIA (Continued)**

NSG 5268 **Howard University** **2015**
Characterization of low intensity X-ray imaging devices
Period *Obligations*
04/15/78-06/14/81 **FY80: \$28,206 TOTAL: \$76,900**
Prin Invest *NASA Tech Officer* *CASE Category*
Ferguson, G. A. GSFC/Yin, L. I. 56-Medical Sciences
GSFC/Trombka, J. I.

NSG 5295 **Howard University** **2016**
Test for diurnal rainfall variation using Nimbus 5 data
Period *Obligations*
08/01/78-01/31/80 **FY80: TOTAL: \$45,826**
Prin Invest *NASA Tech Officer* *CASE Category*
Gill, T. L. GSFC/Laughlin, C. R. 21-Mathematics

NSG 5336 **Howard University** **2017**
Low cost terminals using remotely generated cross-correlation references
Period *Obligations*
02/01/79-07/31/80 **FY80: TOTAL: \$57,606**
Prin Invest *NASA Tech Officer* *CASE Category*
Gout, J. W. GSFC/Taylor, R. I. 45-Elec Engr
Gnoudhury, A. K.

NSG 5378 **Howard University** **2018**
Clinical applications of the lexiscopes
Period *Obligations*
07/01/79-06/30/80 **FY80 TOTAL: \$13,724**
Prin Invest *NASA Tech Officer* *CASE Category*
Press, H. C., Jr. GSFC/Yin, L. I. 56-Medical Sciences
GSFC/Trombka, J. I.

NSG 09-053-003 **Univ of District of Columbia-Harvard Ga** **2019**
Investigation of problems associated with solid encapsulation of high voltage electronic assemblies
Period *Obligations*
04/15/74-08/31/81 **FY80 \$118,051 TOTAL: \$229,525**
Prin Invest *NASA Tech Officer* *CASE Category*
Lessin, I. GSFC/Rutberg, A. P. 39-Env Sci, NEC

NSG 09-050-003 **Univ of District of Columbia-Mt Vernon** **2020**
Fundamental and analytical investigations of mechanisms and phenomena related to spacecraft electrochemical devices
Period *Obligations*
10/07/69-08/31/80 **FY80: TOTAL: \$144,472**
Prin Invest *NASA Tech Officer* *CASE Category*
Nottingham, W. C. GSFC/Webster, W. H., Jr. 11-Astronomy
GSFC/Ford, F. F.

NSG 09-050-019 **Univ of District of Columbia-Mt Vernon** **2021**
Determination of heavy metals in sediments and benthic species in relation to nuclear power plant operation
Period *Obligations*
02/18/74-12/30/80 **FY80: TOTAL: \$190,549**
Prin Invest *NASA Tech Officer* *CASE Category*
Phelps, H. I. GSFC/Gross, F. C. 39-Env Sci, NEC

NSG 5122 **Univ of District of Columbia-Mt Vernon** **2022**
Research in orbit determination by method of least squares and Kalman filter
Period *Obligations*
08/01/76-01/31/81 **FY80: \$18,276 TOTAL: \$43,805**
Prin Invest *NASA Tech Officer* *CASE Category*
Bakshi, J. S. GSFC/Lefferts, F. 21-Mathematics

NSG 5192 **Univ of District of Columbia-Mt Vernon** **2023**
Excitation cross section measurements of atmospheric interest
Period *Obligations*
08/01/77-08/31/81 **FY80: \$55,845 TOTAL: \$211,842**
Prin Invest *NASA Tech Officer* *CASE Category*
Morgan, H. D. GSFC/Mentall, J. F. 13-Physics

NSG 5-75 **Univ of District of Columbia-Van Ness** **2024**
Research on the causes of the temporal changes in the Earth's albedo
Period *Obligations*
06/01/80-05/31/81 **FY80: \$32,138 TOTAL: \$32,138**
Prin Invest *NASA Tech Officer* *CASE Category*
Dhuria, H. GSFC/Curran, R. I. 31-Atmos Sci
GSFC/King, M. D.

NSG 5-91 **Univ of District of Columbia-Van Ness** **2025**
Data management and language enhancement for generalized set theory computer
Period *Obligations*
08/01/80-07/31/81 **FY80: \$48,686 TOTAL: \$48,686**
Prin Invest *NASA Tech Officer* *CASE Category*
Finley, G. T. GSFC/Purves, L. R. 22-Computer Science
GSFC/Premack, T.

NSG 5-95 **Univ of District of Columbia-Van Ness** **2026**
Study of the evolution of solar active regions
Period *Obligations*
06/01/79-08/15/79 **FY80: TOTAL: \$3,860**
Prin Invest *NASA Tech Officer* *CASE Category*
Kasten, R. GSFC/Hobbs, R. W. 11-Astronomy

NSG 5290 **Univ of District of Columbia-Van Ness** **2027**
Measurement of bi-directional reflected spectra and correlation to agronomic parameters
Period *Obligations*
08/01/78-11/30/80 **FY80: \$44,073 TOTAL: \$70,517**
Prin Invest *NASA Tech Officer* *CASE Category*
Wattington, R. A. GSFC/Chappelle, F. W. 19-Phys Sci, NEC

NASA'S UNIVERSITY PROGRAM FLORIDA

FLORIDA

NAS 1-15724 Embry-Riddle Aeronautical University 2028
Development of training materials and concepts for terminal configured vehicle research programs

Period	Obligations	
02/22/79-01/30/80	FY80: TOTAL \$14,666	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Grandelman, J.	LARC/Houck, J. A.	41-Aero Engr
Connolly, T. J.	LARC/Bowles, R. L.	
Brachhold, A. F.		

NAS 6-3040 Embry-Riddle Aeronautical University 2029
Study for the evaluation of in-flight instrument flight rules procedures trainer

Period	Obligations	
10/01/79-09/30/80	FY80: \$23,560 TOTAL: \$23,560	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gandelman, J.	WFC/Aaron, J. B.	41-Aero Engr
	WFC/Parker, L. C.	

NAS 5-25165 Florida A&M University 2030
Medical application for computer technology

Period	Obligations	
08/15/78-04/17/81	FY80 \$49,000 TOTAL \$97,317	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fresh, F. A.	GSFC/Alterescu, S.	56-Medical Sciences

NSG 2029 Florida A&M University 2031
Study of influence of amines on diurnal toxicity of stimulants and depressants

Period	Obligations	
07/01/74-10/31/80	FY80: TOTAL \$288,058	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Walker, C. A.	ARC/Winget, C. M.	59-Life Sci, NEC

NSG 2183 Florida A&M University 2032
Regulation of the adrenal cortex function during stress

Period	Obligations	
09/01/76-10/31/80	FY80: TOTAL \$148,952	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Soliman, K. F.	ARC/Winget, C. M.	59-Life Sci, NEC

NSG 5307 Florida A&M University 2033
Electron-impact excitation of molecular nitrogen

Period	Obligations	
11/15/78-11/14/81	FY80: \$66,641 TOTAL: \$177,075	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jones, H. W.	GSFC/Temkin, A.	13-Physics
Weatherford, C. A.		
Jain, B. L.		

NAG 5-6 Florida State University 2034
Investigation of microwave radiometer data in global numerical weather prediction

Period	Obligations	
02/01/80-01/31/81	FY80: \$63,090 TOTAL: \$63,090	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Krishnamurti, T. N.	GSFC/Halem, M.	31-Atmos Sci

NAS 1-14930 Florida State University 2035
Science support for the stratospheric aerosol and gas experiment

Period	Obligations	
06/22/77-09/30/79	FY80: TOTAL: \$50,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Craig, R. A.	LARC/McMaster, L. R.	31-Atmos Sci
	LARC/McCormick, M. P.	

NGR 10-004-056 Florida State University 2036
Infrared absorption from 0.8 to 1.5 microns of NH₃, CH₄ and CO₂

Period	Obligations	
03/25/69-01/31/81	FY80: \$18,000 TOTAL: \$299,963	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hunt, R. H.	HD-SL/Brunk, W. E.	11-Astronomy
	HD-SL/Murphy, R. E.	

NSG 7337 Florida State University 2037
Rock-inhabiting microorganisms from hot and cold deserts adaptations to extreme environments

Period	Obligations	
03/15/77-03/14/81	FY80: \$85,000 TOTAL: \$289,960	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Friedmann, F. I.	HD-SB/Devincenzi, D. L.	
Friedmann, R. O.		54-Env Biology

NSG 7473 Florida State University 2038
Laboratory determination of infrared absorption line parameters for molecules of importance in upper atmospheric research

Period	Obligations	
07/01/78-07/01/81	FY80: \$35,000 TOTAL: \$105,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hunt, R. H.	HD-EB/Toth, R. A.	31-Atmos Sci
	HD-EB/Seals, R. K. Jr.	

NSG 7629 Florida State University 2039
Meteorology studies of Mars

Period	Obligations	
03/01/79-09/30/80	FY80: \$51,000 TOTAL \$84,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hess, S. L.	HD-SL/Murphy, R. E.	31-Atmos Sci
	HD-SL/Brunk, W. E.	

NASW 3060 State University System of Florida 2040
Operation of a state technology application center

Period	Obligations	
01/01/77-02/29/80	FY80: \$47,961 TOTAL: \$379,941	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Unavailable	HD-ET/Dolby, W.	99-Multi-Discip

NASA'S UNIVERSITY PROGRAM
FLORIDA (Continued)

NASW 3351 **State University System of Florida** **2041**
Operation of a State Technology Applications Center (STAC)
Period *Obligations*
03/01/80-02/28/81 FY80: \$266,000 TOTAL: \$266,000
Prin Invest *NASA Tech Officer* *CASE Category*
Unavailable HD-ET/Harrison, J. 22-Computer Science

NAS 8-32835 **The University of Central Florida** **2042**
Boundary integral fracture mechanics code
Period *Obligations*
02/27/78-08/31/80 FY80: TOTAL: \$24,515
Prin Invest *NASA Tech Officer* *CASE Category*
Carroll, W. F. MSFC/Bianca, C. 47-Materials Engr
MSFC/Frederick, P. W.

NAS 8-33071 **The University of Central Florida** **2043**
Study of cloud cover modeling
Period *Obligations*
05/30/78-09/30/79 FY80: TOTAL: \$20,000
Prin Invest *NASA Tech Officer* *CASE Category*
Somerville, P. N. MSFC/Smith, O. F. 31-Atmos Sci
MSFC/Brown, S. C.

NAS 8-33761 **The University of Central Florida** **2044**
Domestic hot water system test support
Period *Obligations*
12/14/79-12/14/80 FY80: \$14,367 TOTAL: \$14,367
Prin Invest *NASA Tech Officer* *CASE Category*
Gunter, R. D. MSFC/Thomas, C. N. 99-Multi-Discip
Gleman, S.

NAS10-9841 **The University of Central Florida** **2045**
Kennedy Space Center precipitation monitoring program
Period *Obligations*
06/15/80-06/14/81 FY80: \$40,683 TOTAL: \$40,683
Prin Invest *NASA Tech Officer* *CASE Category*
Madsen, B. C. KSC/Rudolph, H. W. 39-Env Sci, NEC

NAS10-9897 **The University of Central Florida** **2046**
Study entitled, air particulate sampling
Period *Obligations*
07/30/80-07/29/81 FY80: \$19,479 TOTAL: \$19,479
Prin Invest *NASA Tech Officer* *CASE Category*
Hudson, G. M. KSC/Rudolph, H. W. 31-Atmos Sci

NAG 1-39 **University of Florida** **2047**
The numerical solution of partial differential equations by the method of lines
Period *Obligations*
02/01/80-02/28/81 FY80: \$11,875 TOTAL: \$11,875
Prin Invest *NASA Tech Officer* *CASE Category*
Edwards, B. H. LARC/Haugler, G. W. 21-Mathematics

NAG 1-104 **University of Florida** **2048**
Investigation of flow instabilities on a rotating disk with curvature in the radial direction
Period *Obligations*
09/15/80-09/14/81 FY80: \$20,266 TOTAL: \$20,266
Prin Invest *NASA Tech Officer* *CASE Category*
Clarkson, M. H. LARC/Wilkinson, S. P. 41-Aero Engr
LARC/Bushnell, D. M.

NAG 2-46 **University of Florida** **2049**
Studies in the accuracy of relative measurements
Period *Obligations*
06/15/80-04/15/81 FY80: \$20,000 TOTAL: \$20,000
Prin Invest *NASA Tech Officer* *CASE Category*
Fichhorn, H. K. ARC/Black, D. C. 11-Astronomy

NAG 5-110 **University of Florida** **2050**
Observation of the lyman alpha line during primary eclipse of Beta Persic
Period *Obligations*
10/01/80-09/30/81 FY80: \$4,355 TOTAL: \$4,355
Prin Invest *NASA Tech Officer* *CASE Category*
Wood, F. B. GSFC/Corrigan, J. P. 11-Astronomy

NAS 2-9976 **University of Florida** **2051**
Experiment implementation of a lightning and radio emission detector
Period *Obligations*
05/31/78-03/31/82 FY80: \$24,939 TOTAL: \$49,939
Prin Invest *NASA Tech Officer* *CASE Category*
Lanzarotti, L. J. ARC/Wilhelm, A. J. 31-Atmos Sci
Uman, M. A. ARC/Tischler, E. T.
Krider, E. P.

NAS 5-22908 **University of Florida** **2052**
Nimbus-G experiment team for solar back-scattered ultraviolet and total ozone mapping system
Period *Obligations*
12/19/75-12/31/81 FY80: \$44,000 TOTAL: \$252,000
Prin Invest *NASA Tech Officer* *CASE Category*
Green, A. E. GSFC/Nelsen, E. D. 49-Engr, NEC

NAS10-8920 **University of Florida** **2053**
Models to predict Earth-air interface temperature regimes during freeze conditions
Period *Obligations*
12/02/75-05/07/80 FY80: TOTAL: \$263,515
Prin Invest *NASA Tech Officer* *CASE Category*
Martsolf, J. D. KSC/Horn, F. W. 39-Env Sci, NEC

NAS10-9168 **University of Florida** **2054**
Satellite freeze forecast system
Period *Obligations*
05/10/77-07/30/80 FY80: \$35,000 TOTAL: \$299,230
Prin Invest *NASA Tech Officer* *CASE Category*
Martsolf, J. D. KSC/Horn, F. W. 39-Env Sci, NEC

NASA'S UNIVERSITY PROGRAM **FLORIDA (Continued)**

NAS10-9611 **University of Florida** **2055**
Application of satellite freeze technology to other parts of the
US
Period *Obligations*
05/04/79-05/03/80 FY80: TOTAL: \$47,999
Prin Invest NASA Tech Officer CASE Category
Martsolf, J. D. KSC/Horn, F. W. 31-Atmos Sci

NAS10-9666 **University of Florida** **2056**
Color infrared applications to agriculture
Period *Obligations*
07/19/79-01/18/81 FY80: \$26,020 TOTAL \$38,520
Prin Invest NASA Tech Officer CASE Category
Blazquez, C. H. KSC/Horn, F. W. 39-Env Sci, NEC
KSC/Barnett, U. R.

NAS10-9876 **University of Florida** **2057**
Study entitled application of satellite freeze forecast technology
to other parts of the US
Period *Obligations*
07/10/80-07/09/81 FY80 \$50,000 TOTAL \$50,000
Prin Invest NASA Tech Officer CASE Category
Martsolf, J. D. KSC/Horn, F. W. 31-Atmos Sci

NAS10-9892 **University of Florida** **2058**
Study entitled satellite freeze forecast system
Period *Obligations*
07/31/80-01/30/81 FY80: \$98,802 TOTAL \$98,802
Prin Invest NASA Tech Officer CASE Category
Martsolf, J. D. KSC/Horn, F. W. 31-Atmos Sci

NAS13-106 **University of Florida** **2059**
Conducting short courses in remote sensing
Period *Obligations*
01/08/79-06/01/80 FY80 TOTAL: \$24,161
Prin Invest NASA Tech Officer CASE Category
Cross, C NSTL/Atwell, B. H. 32-Geological Sci

NCC 2-23 **University of Florida** **2060**
The investigation of the flow about general fuselage shapes at
high angles of attack
Period *Obligations*
11/01/79-10/31/81 FY80: \$95,855 TOTAL: \$95,855
Prin Invest NASA Tech Officer CASE Category
Clarkson, M. H. ARC/Malcolm, G. N. 41-Aero Engr

NGL 10-005-008 **University of Florida** **2061**
Theoretical atmospheric physics
Period *Obligations*
06/04/64-04/30/81 FY80: TOTAL: \$666,460
Prin Invest NASA Tech Officer CASE Category
Green, A. S. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NGL 10-005-089 **University of Florida** **2062**
Experimental investigation of a uranium plasma
Period *Obligations*
01/30/68-12/31/78 FY80: TOTAL: \$778,795
Prin Invest NASA Tech Officer CASE Category
Schneider, R. T. HD-RR/Thom, K. 13-Physics

NGR 10-005-169 **University of Florida** **2063**
Lightning studies
Period *Obligations*
01/15/73-04/13/81 FY80: \$9,999 TOTAL: \$84,196
Prin Invest NASA Tech Officer CASE Category
Uman, M. A. KSC/Jafferis, W. 31-Atmos Sci

NGR 10-005-182 **University of Florida** **2064**
Fundamental studies on electrolyte matrix processing
Period *Obligations*
06/26/73-02/01/81 FY80: TOTAL: \$102,667
Prin Invest NASA Tech Officer CASE Category
Walker, R. D., Jr LERC/Sheibley, D. W. 43-Chem Engr

NGT 10-005-800 **University of Florida** **2065**
A separated flow study
Period *Obligations*
09/01/80-08/31/81 FY80: \$8,275 TOTAL: \$8,275
Prin Invest NASA Tech Officer CASE Category
Clarkson, M. H. ARC/Chapman, G. T. 41-Aero Engr
ARC/Malcolm, G. N.

NGT 10-005-801 **University of Florida** **2066**
Graduate student researchers program
Period *Obligations*
09/01/80-08/31/81 FY80: \$8,509 TOTAL: \$8,509
Prin Invest NASA Tech Officer CASE Category
Fearn, R. L. LARC/Margason, R. J. 41-Aero Engr

NSG 1425 **University of Florida** **2067**
Study of the electronic properties in the electron and proton
irradiated GaAlAs solar cell materials
Period *Obligations*
09/01/77-02/23/81 FY80: \$14,000 TOTAL: \$134,400
Prin Invest NASA Tech Officer CASE Category
Li, S. S. LARC/Walker, G. H. 45-Elec Engr
LARC/Conway, L. J.

NSG 1586 **University of Florida** **2068**
Research on radiation induced laser plasmas
Period *Obligations*
01/01/79-12/31/80 FY80: \$65,410 TOTAL: \$164,645
Prin Invest NASA Tech Officer CASE Category
Schneider, R. T. LARC/Hohl, F. 13-Physics
LARC/Jalufka, N. W.

**NASA'S UNIVERSITY PROGRAM
FLORIDA (Continued)**

NSG 1600 University of Florida 2069
The photochemistry of tropospheric CO and NOx and the impact of anthropogenic emissions

Period	Obligations
04/01/79-09/30/80	FY80: TOTAL: \$59,077
Prin Invest	NASA Tech Officer CASE Category
Chameides, W. L.	LARC/Reichle, H. G., Jr. 31-Atmos Sci

NSG 2288 University of Florida 2070
A jet in a crossflow

Period	Obligations
01/01/78-11/30/81	FY80: \$59,273 TOTAL: \$170,261
Prin Invest	NASA Tech Officer CASE Category
Fearn, R. L.	ARC/Aoyagi, K. 41-Aero Engr
	ARC/Koenig, D. G.

NSG 3018 University of Florida 2071
Silicon PN junction solar cells

Period	Obligations
06/24/74-02/29/80	FY80: TOTAL: \$266,983
Prin Invest	NASA Tech Officer CASE Category
Lindholm, F. A.	LERC/Godlewski, M. P. 45-Elec Engr
Neugroschel, A.	LERC/Brandt, H. W., Jr.

NSG 3254 University of Florida 2072
Mechanisms of devitrification of grain boundary glassy phases in silicon nitride materials

Period	Obligations
03/26/77-03/25/81	FY80: \$42,200 TOTAL: \$82,200
Prin Invest	NASA Tech Officer CASE Category
Hench, L. L.	LERC/Dutta, S. 47-Materials Engr

NSG 3273 University of Florida 2073
Evaluation of ion beam sputtered bioglass coatings of prosthetic devices

Period	Obligations
07/01/79-06/29/81	FY80: \$15,785 TOTAL: \$25,525
Prin Invest	NASA Tech Officer CASE Category
Hench, L. L.	LERC/Weigand, A. J. 56-Medical Sciences
	LERC/Banks, B. A.

NSG 7236 University of Florida 2074
Use of remote sensing in solving Florida's geological and coastal engineering problems

Period	Obligations
07/01/76-06/30/83	FY80: \$100,000 TOTAL: \$599,622
Prin Invest	NASA Tech Officer CASE Category
Ruth, B. E.	HD-ET/Vitale, J. A. 39-Env Sci, NEC

NAS 2-10524 University of Miami 2075
Life science experiment: Cell-to-cell communications in space

Period	Obligations
01/17/80-12/31/80	FY80: \$24,389 TOTAL: \$24,389
Prin Invest	NASA Tech Officer CASE Category
Loewenstein, W. R.	ARC/Rasmussen, D. N. 51-Biological Sci
	ARC/Martens, J.

NAS 5-22963 University of Miami 2076
Nimbus-G coastal zone color scanner sensor experiment

Period	Obligations
02/02/76-09/30/81	FY80: \$60,000 TOTAL: \$170,365
Prin Invest	NASA Tech Officer CASE Category
Gordon, H. R.	GSFC/Nelsen, E. D. 31-Atmos Sci

NAS 5-25374 University of Miami 2077
Data Systems Test (DST) evaluation and data sets

Period	Obligations
01/15/79-03/14/81	FY80: \$48,837 TOTAL: \$109,303
Prin Invest	NASA Tech Officer CASE Category
Krause, E. B.	GSFC/Greaves, J. R. 31-Atmos Sci
	GSFC/Rivas, E.

NAS 5-26201 University of Miami 2078
Investigations of medium wavelength magnetic anomalies in the eastern Pacific using magnetic fields monitor satellite data

Period	Obligations
06/02/80-11/02/82	FY80: \$30,000 TOTAL: \$30,000
Prin Invest	NASA Tech Officer CASE Category
Harrison, C. G.	GSFC/Oseoff, H. 32-Geological Sci

NAS 5-26241 University of Miami 2079
Evolution and behavior of major pollution episodes over extended time and space scales

Period	Obligations
07/14/80-12/01/80	FY80: \$10,000 TOTAL: \$10,000
Prin Invest	NASA Tech Officer CASE Category
Prospero, J. M.	GSFC/Fraser, R. 31-Atmos Sci

NAS 8-32898 University of Miami 2080
Numerical study of baroclinic instability

Period	Obligations
06/02/78-06/14/79	FY80: TOTAL: \$23,260
Prin Invest	NASA Tech Officer CASE Category
Geisler, J. E.	MSFC/Fowles, W. W. 31-Atmos Sci
	MSFC/Fichtl, G. H.

NAS 8-33523 University of Miami 2081
Modification of a computer general circulation model of the Earth's atmosphere for the atmospheric general circulation experiment

Period	Obligations
04/16/80-04/15/81	FY80: \$59,092 TOTAL: \$59,092
Prin Invest	NASA Tech Officer CASE Category
Geisler, J. E.	MSFC/Fowles, W. W. 31-Atmos Sci
	MSFC/Torkar, J. E.

NAS 8-33558 University of Miami 2082
Numerical study of baroclinic instability

Period	Obligations
09/01/79-11/30/79	FY80: TOTAL: \$7,000
Prin Invest	NASA Tech Officer CASE Category
Geisler, J. E.	MSFC/Fowles, W. W. 31-Atmos Sci
	MSFC/Fichtl, G. H.

NASA'S UNIVERSITY PROGRAM **FLORIDA (Continued)**

NAS 9-15473 **University of Miami** **2083**
Study of sodium homeostasis and renin-aldosterone during water immersion
Period *Obligations*
11/21/77-01/31/81 FY80: \$25,000 TOTAL: \$90,000
Prin Invest *NASA Tech Officer* *CASE Category*
Epstein, M JSC/Huntoon, C. L. 56-Medical Sciences

NAS10-9410 **University of Miami** **2084**
Three dimensional thermal pollution mathematical model
Period *Obligations*
06/06/78-08/05/80 FY80: TOTAL: \$189,643
Prin Invest *NASA Tech Officer* *CASE Category*
Lee, S. S KSC/Bland, R. A. 46-Mech Engr
Sengupta, S. KSC/Barnett, U. R.

NGR 10-007-008 **University of Miami** **2085**
Research in the Institute of Molecular Evolution in the School of Environmental and Planetary Sciences
Period *Obligations*
06/09/64-09/30/80 FY80: \$65,000 TOTAL \$2,587,040
Prin Invest *NASA Tech Officer* *CASE Category*
Fox, S. W HD-SB/Young, R. S. 12-Chemistry

NSG 1283 **University of Miami** **2086**
Effects of environmental variables on the crack initiation stages of the corrosion fatigue of high strength aluminum alloys
Period *Obligations*
03/01/76-09/30/80 FY80: TOTAL: \$108,383
Prin Invest *NASA Tech Officer* *CASE Category*
Potat, L. E LARC/Lisagor, W. B. 47-Materials Engr
LARC/Ransone, P. O.

NSG 1436 **University of Miami** **2087**
Development of Boolean calculus and its application
Period *Obligations*
08/15/77-12/31/80 FY80: TOTAL: \$59,797
Prin Invest *NASA Tech Officer* *CASE Category*
Tapia, M. A LARC/Tucker, J. H. 21-Mathematics

NSG 5342 **University of Miami** **2088**
Tropical disturbances in relation to general circulation modeling
Period *Obligations*
05/01/79-05/31/81 FY80 \$87,147 TOTAL: \$149,368
Prin Invest *NASA Tech Officer* *CASE Category*
Estoque, M. A GSFC/Halem, M 31-Atmos Sci

NSG 5344 **University of Miami** **2089**
Research of ocean fronts and applications to Atlantic bluefish tuna utilization and management
Period *Obligations*
04/04/79-07/20/81 FY80: \$90,755 TOTAL: \$170,152
Prin Invest *NASA Tech Officer* *CASE Category*
Williams F. GSFC/McCain, C. R. 33-Oceanography
Maul, G. A

NSG 7510 **University of Miami** **2090**
Freezing brines: A Martian regolith model
Period *Obligations*
12/01/78-08/31/79 FY80: TOTAL: \$10,585
Prin Invest *NASA Tech Officer* *CASE Category*
Brass, G. B. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NAG 1-9 **University of South Florida** **2091**
Stochastic analysis of multiple-Passbano spectral classification systems affected by observation errors
Period *Obligations*
01/01/80-12/31/80 FY80: \$41,155 TOTAL: \$41,155
Prin Invest *NASA Tech Officer* *CASE Category*
Tsokos, C. P. LARC/Huck, F. O. 21-Mathematics
LARC/Sterner, R. L.

GEORGIA

NAG 10-3 **Atlanta University** **2092**
Polymer fractography: A scanning electron microscopy atlas of fractures
Period *Obligations*
08/19/80-08/18/81 FY80: \$55,676 TOTAL: \$55,676
Prin Invest *NASA Tech Officer* *CASE Category*
Korda, E. J. KSC/Bryan, C. J. 47-Materials Engr

NSG 8019 **Atlanta University** **2093**
A study of the redox photo-chemistry of a number of iron complexes
Period *Obligations*
09/01/74-05/31/80 FY80: TOTAL: \$99,679
Prin Invest *NASA Tech Officer* *CASE Category*
Reed, J. L. MSFC/Kent, M. I. 12-Chemistry
Johnson, J

NSG 2143 **Clark College** **2094**
Aerosol formation and the space shuttle program
Period *Obligations*
04/15/76-07/31/81 FY80: \$31,502 TOTAL: \$131,589
Prin Invest *NASA Tech Officer* *CASE Category*
Veluri, V. R. ARC/Whitten, R. C. 12-Chemistry
Utley, H. B. ARC/Farlow, N. H.

NAS 2-10527 **Emory University** **2095**
Cardiovascular adaptation of white rats to decreased gravity of space shuttle/spacelab inflight conditions
Period *Obligations*
01/17/80-12/31/80 FY80: \$7,914 TOTAL: \$7,914
Prin Invest *NASA Tech Officer* *CASE Category*
Popovic, V. P. ARC/Rasmussen, D.N. 51-Biological Sci
ARC/Ginn, R.

NASA'S UNIVERSITY PROGRAM
GEORGIA (Continued)

NAS 2-10627 Emory University 2096
Maintenance of NASA primate resources and primate baseline data
Period Obligations
05/01/80-04/30/81 FY80 \$141,536 TOTAL \$141,536
Prin Invest NASA Tech Officer CASE Category
McClure, H. M. ARC/Gomersall, F. W. 59-Life Sci, NEC

NSG 11-001-009 Emory University 2097
Study of cardiovascular adaptation during long-term weightlessness
Period Obligations
05/12/85-06/30/82 FY80 TOTAL \$627,198
Prin Invest NASA Tech Officer CASE Category
Popovic, V. P. ARC/Holton, E. M. 51-Biological Sci

NSG 735 Fort Valley State College 2098
Nitrogen fixation as an adjunct to wastewater purification systems using water hyacinths
Period Obligations
07/17/79-07/16/81 FY80 TOTAL \$29,923
Prin Invest NASA Tech Officer CASE Category
Brown, N. B., Jr. NSIL/Wolverton, B. C. 39-Env Sci, NEC

DEF 3-73 Georgia Institute of Technology 2099
Flat plate photovoltaic system costs study
Period Obligations
09/21/78-08/20/79 FY80 TOTAL \$38,122
Prin Invest NASA Tech Officer CASE Category
Zimmer, R. P. LERC/Hein, G. F. 45-Elec Engr

NAG 1-40 Georgia Institute of Technology 2100
Mean velocities and Reynolds stresses in a junction flow
Period Obligations
03/31/80-12/31/80 FY80 \$29,982 TOTAL \$29,982
Prin Invest NASA Tech Officer CASE Category
McMahon, H. M. LARC/Scheiman, J. 41-Aero Engr
Hubbart, J. L. LARC/Dwyer, D. L.

NAG 1-50 Georgia Institute of Technology 2101
Development of an airborne laser photofragmentation
Period Obligations
03/01/80-02/28/81 FY80 \$233,982 TOTAL \$233,982
Prin Invest NASA Tech Officer CASE Category
Davis, D. D. LARC/Allario, F. 31-Atmos Sci
Rodgers, M.
Asai, K.

NAG 1-85 Georgia Institute of Technology 2102
The photochemistry of tropospheric carbon-oxygen (CO) and nitrogen-oxygen (NO_x) and the impact anthropogenic emissions
Period Obligations
07/01/80-06/30/81 FY80 \$59,728 TOTAL \$59,728
Prin Invest NASA Tech Officer CASE Category
Chameides, W. L. LARC/Reichle, H. G. 31-Atmos Sci
LARC/Wallio, H. A.

NAG 2-11 Georgia Institute of Technology 2103
Molten carbonate CO₂ concentrator
Period Obligations
01/01/80-12/31/80 FY80 \$45,069 TOTAL \$45,069
Prin Invest NASA Tech Officer CASE Category
Winnick, J. ARC/Quattrone, P. D. 59-Life Sci, NEC

NAG 3-38 Georgia Institute of Technology 2104
Finite strain creep and creep crack growth analysis
Period Obligations
06/01/80-05/31/81 FY80 \$49,992 TOTAL \$49,992
Prin Invest NASA Tech Officer CASE Category
Atluri, S. N. LERC/Smith, G. T. 46-Mech Engr
LERC/Chamis, C. C.

NAG 3-67 Georgia Institute of Technology 2105
Prediction of sound radiation from different practical jet engine inlets
Period Obligations
06/02/80-06/01/81 FY80 \$50,559 TOTAL \$50,559
Prin Invest NASA Tech Officer CASE Category
Zinn, B. T. LERC/Saule, A. V. 41-Aero Engr
Meyer, W. L. LERC/Rice, F. J.

NAG 3-77 Georgia Institute of Technology 2106
Surface temperatures and glassy state investigations in tribology
Period Obligations
07/01/80-07/01/81 FY80 \$40,029 TOTAL \$40,029
Prin Invest NASA Tech Officer CASE Category
Winer, W. O. LERC/Jones, W. R. 46-Mech Engr
Bair, S.

NAG 3-96 Georgia Institute of Technology 2107
Development of a spinning wave heat engine
Period Obligations
09/08/80-09/07/81 FY80 \$50,498 TOTAL \$50,498
Prin Invest NASA Tech Officer CASE Category
Zinn, B. T. LERC/Phillips, B. R. 41-Aero Engr
Powell, F. A.

NAS 1-14351 Georgia Institute of Technology 2108
Benefit assessment of pollution monitoring satellites
Period Obligations
02/26/76-09/05/79 FY80 TOTAL \$72,339
Prin Invest NASA Tech Officer CASE Category
Zimmer, R. P. LARC/Lawrence, G. F. 31-Atmos Sci
Sassone, P. LARC/Rarer, J. I.
Haffer, S. C.

NAS 1-15158 Georgia Institute of Technology 2109
A study to interpret the surface pressure measurements at the tip of a model helicopter rotor in hover
Period Obligations
11/01/77-01/31/80 FY80 TOTAL \$29,000
Prin Invest NASA Tech Officer CASE Category
Gray, R. B. LARC/Young, W. H., Jr. 41-Aero Engr
McMahon, H. M. LARC/Mantay, W. R.

NASA'S UNIVERSITY PROGRAM

GEORGIA (Continued)

NAS 1-15370			Georgia Institute of Technology			2110
Holographic data storage crystals experiment for the Long Duration Exposure Facility (LDEF)						
<i>Period</i>	<i>Obligations</i>					
04/21/78-10/20/80	FY80:	TOTAL: \$24,838				
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>				
Gaylord, T. K.	LARC/ONeal, R. L.	45-Elec Engr				
Callen, W. R.	LARC/Clark, L. G.					

NAS 1-16222			Georgia Institute of Technology			2111
Helicopter rotor loads using a matched asymptotic expansion technique study						
<i>Period</i>	<i>Obligations</i>					
07/01/80-03/15/81	FY80 \$20,465	TOTAL: \$20,465				
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>				
Pierce, G. A.	LARC/Berry, J. D.	41-Aero Engr				

NAS 1-16356			Georgia Institute of Technology			2112
Science support for Earth Radiation Budget Satellite (ERBS)/ Stratospheric Aerosol and Gas Experiment (SAGE)						
<i>Period</i>	<i>Obligations</i>					
08/07/80-08/06/85	FY80 \$44,738	TOTAL: \$44,738				
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>				
Grams, G. W.	LARC/McMaster, L. R.	31-Atmos Sci				
	LARC/McCormick, M. P.					

NAS 1-16357			Georgia Institute of Technology			2113
Science support for Earth Radiation Budget Satellite (ERBS)/ Stratospheric Aerosol and Gas Experiment (SAGE)						
<i>Period</i>	<i>Obligations</i>					
08/07/80-08/06/85	FY80 \$26,528	TOTAL: \$26,528				
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>				
Cunnold, D. M.	LARC/McMaster, L. R.	31-Atmos Sci				
	LARC/McCormick, M. P.					

NAS 5-23710			Georgia Institute of Technology			2114
Aircraft radiometer system for project storm fury						
<i>Period</i>	<i>Obligations</i>					
09/21/76-04/30/80	FY80: \$60,971	TOTAL: \$514,168				
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>				
Schuchardt, J. M.	GSFC/King, J. L.	45-Elec Engr				

NAS 5-24148			Georgia Institute of Technology			2115
Thunderstorm research international project, 1977						
<i>Period</i>	<i>Obligations</i>					
05/04/77-06/04/81	FY80: \$37,722	TOTAL: \$84,715				
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>				
Saxena, S. K.	GSFC/Levine, D. M.	31-Atmos Sci				

NAS 5-25817			Georgia Institute of Technology			2116
Study of Nimbus 7 applications investigation from priority 1 listing						
<i>Period</i>	<i>Obligations</i>					
08/20/79-02/19/81	FY80:	TOTAL: \$68,113				
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>				
Cunn Id, D. M.	GSFC/Slajna, E. F.	39-Env Sci, NEC				

NAS 5-26220			Georgia Institute of Technology			2117
Advanced Microwave Moisture Sounder (AMMS) Rain Mapping Radiometers (RMR) August 1980 B-57 mission						
<i>Period</i>	<i>Obligations</i>					
07/08/80-11/07/80	FY80: \$70,698	TOTAL: \$70,698				
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>				
Gagliano, J. A.	GSFC/King, L.	45-Elec Engr				

NAS 5-26304			Georgia Institute of Technology			2118
The prediction of the dynamical impact of changes in stratosphere ozone, phase 1 (UARS)						
<i>Period</i>	<i>Obligations</i>					
10/01/80-12/30/81	FY80: \$11,000	TOTAL: \$11,000				
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>				
Cunnold, D. M.	GSFC/Reber, C. A.	31-Atmos Sci				

NAS 8-32897			Georgia Institute of Technology			2119
Study-low latitude winds for orbital reentry						
<i>Period</i>	<i>Obligations</i>					
06/02/78-06/01/79	FY80	TOTAL: \$40,000				
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>				
Justus, C. G.	MSFC/Smith, O. E.	31-Atmos Sci				
	MSFC/Johnson, D.					

NAS 8-33093			Georgia Institute of Technology			2120
Applications of acoustics in the measurement of coal slab thicknesses						
<i>Period</i>	<i>Obligations</i>					
07/31/78-10/31/79	FY80:	TOTAL: \$87,636				
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>				
Pierce, A. D.	MSFC/Reed, B.	49-Engr, NEC				
Mills, J. M.	MSFC/Randall, J.					
Madden, J., Jr						

NAS 8-33438			Georgia Institute of Technology			2121
Quantitative analysis of metallurgical specimens						
<i>Period</i>	<i>Obligations</i>					
06/04/79-06/03/81	FY80: \$4,999	TOTAL: \$15,968				
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>				
Brown, J. L.	MSFC/Johnston, M. H.					
Johnson, J. W.	MSFC/Parr, R. A.	47-Materials Engr				

NAS 8-33605			Georgia Institute of Technology			2122
High accuracy radiation efficiency measurement techniques Study is related to satellite power systems						
<i>Period</i>	<i>Obligations</i>					
09/27/79-03/31/80	FY80:	TOTAL: \$19,928				
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>				
Wu, S. T.	MSFC/Irman, R. A.	45-Elec Engr				
	MSFC/Finnell, W.					

NASA'S UNIVERSITY PROGRAM
GEORGIA (Continued)

NAS 8-33800 Georgia Institute of Technology 2123
Ice/frost detection using millimeter wave radiometry
Period Obligations
05/28/80-09/27/80 FY80: \$36,137 TOTAL: \$36,137
Prin Invest NASA Tech Officer CASE Category
Gagliano, J. A. MSFC/Gleason, F. H. 45-Elec Engr
Schnuchardt, J. M. MSFC/Bowling, C. O.

NAS10-9757 Georgia Institute of Technology 2124
Study entitled soil radar response study
Period Obligations
02/15/80-08/15/80 FY80: \$9,985 TOTAL: \$9,985
Prin Invest NASA Tech Officer CASE Category
Steinway, W. J. KSC/Kassak, J. E. 32-Geological Sci
KSC/Wojtasinski, R. J.

NCC 2-9 Georgia Institute of Technology 2125
Three-dimensional simulation of the Jovian circulation
Period Obligations
07/01/79-07/31/81 FY80: \$13,025 TOTAL: \$25,994
Prin Invest NASA Tech Officer CASE Category
Alyea, F. N. ARC/Young, R. E. 31-Atmos Sci

NCC 3-14 Georgia Institute of Technology 2126
Interdisciplinary collaboration in tribology
Period Obligations
05/19/80-05/18/81 FY80: \$40,366 TOTAL: \$40,366
Prin Invest NASA Tech Officer CASE Category
Winer, W. O. LERC/Wedeven, L. D. 46-Mech Engr
Ramalingam, S.

NGL 11-002-004 Georgia Institute of Technology 2127
Theoretical and experimental research program in geophysics with emphasis on upper atmosphere chemical release studies
Period Obligations
09/27/62-08/31/80 FY80: TOTAL: \$815,075
Prin Invest NASA Tech Officer CASE Category
Edwards, H. D. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NSG 1493 Georgia Institute of Technology 2128
Science support for solar occultation experiments with the Nimbus-G/SAM II and AEM-B/SAGE spacecraft sensors
Period Obligations
01/16/78-10/15/80 FY80 TOTAL: \$224,399
Prin Invest NASA Tech Officer CASE Category
Grams, G. W. LARC/McMaster, L. R. 31-Atmos Sci
LARC/McCormick, M. P.

NSG 1592 Georgia Institute of Technology 2129
Analysis and design of pendulum vibration absorbers for helicopters
Period Obligations
01/15/79-01/14/81 FY80: \$48,796 TOTAL: \$93,780
Prin Invest NASA Tech Officer CASE Category
Pierce, G. A. LARC/Lee, B. L. 41-Aero Engr
LARC/Hammond, C. E.

NSG 1643 Georgia Institute of Technology 2130
Ozone transport in the lower stratosphere and the ozone-NO2 relationship
Period Obligations
08/01/79-07/31/81 FY80: \$20,000 TOTAL: \$40,000
Prin Invest NASA Tech Officer CASE Category
Cunnold, D. M. LARC/Master, L. R. 31-Atmos Sci
LARC/McCormick, M. P.

NSG 2306 Georgia Institute of Technology 2131
Light-scattering calculations for the nephelometer experiment on the 1981/1982 Jupiter orbiter-probe mission
Period Obligations
03/01/78-02/28/81 FY80: \$10,000 TOTAL: \$37,797
Prin Invest NASA Tech Officer CASE Category
Grams, G. W. ARC/Ragent, B. 31-Atmos Sci

NSG 2323 Georgia Institute of Technology 2132
Chronology integration analyses for closed life support systems applicable to space habitats
Period Obligations
06/01/78-12/31/80 FY80: \$74,654 TOTAL: \$309,654
Prin Invest NASA Tech Officer CASE Category
Carden, J. L. ARC/Wyden, T. J. 59-Life Sci, NEC
Roper, D.

NSG 2356 Georgia Institute of Technology 2133
Development of molded, coated fabric joints
Period Obligations
12/01/78-08/31/81 FY80: \$44,000 TOTAL: \$128,306
Prin Invest NASA Tech Officer CASE Category
Olson, L. H. ARC/Vykukal, H. C. 49-Engr, NEC
Freeston, W. D.

NSG 2363 Georgia Institute of Technology 2134
In-situ measurements of optical properties of stratospheric aerosols using NASA U-2 aircraft
Period Obligations
02/01/79-11/30/80 FY80: \$63,464 TOTAL: \$113,421
Prin Invest NASA Tech Officer CASE Category
Grams, G. W. ARC/Page, W. A. 31-Atmos Sci

NSG 3036 Georgia Institute of Technology 2135
Acoustic properties of turbofan inlets
Period Obligations
09/01/74-10/31/81 FY80: TOTAL: \$134,633
Prin Invest NASA Tech Officer CASE Category
Zinn, B. T. LERC/Baumeister, K. J. 41-Aero Engr
Sigman, R. K. LERC/Rice, E. J.

NSG 3106 Georgia Institute of Technology 2136
Surface temperatures and glassy state investigations in tribology
Period Obligations
05/15/76-07/01/80 FY80: TOTAL: \$119,983
Prin Invest NASA Tech Officer CASE Category
Winer, W. O. LERC/Jones, W. R. 46-Mech Engr
Bair, S.

NASA'S UNIVERSITY PROGRAM
GEORGIA (Continued)

NSG 3228 **Georgia Institute of Technology** **2137**
A study of poultry plant noise characteristics and potential noise control techniques
Period *Obligations*
10/01/78-12/31/80 **FY80: \$55,000 TOTAL: \$105,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Wyvill, J. C. LERC/Feiler, C. E. 13-Physics

NSG 3260 **Georgia Institute of Technology** **2138**
A viscous-inviscid interactive procedure for rotational flow in cascades of two-dimensional airfoils of arbitrary shape
Period *Obligations*
03/15/79-06/13/81 **FY80: \$25,806 TOTAL: \$47,695**
Prin Invest *NASA Tech Officer* *CASE Category*
Johnston, W. A. LERC/Sockol, P. M. 41-Aero Engr

NSG 3297 **Georgia Institute of Technology** **2139**
Foreign labor and capital costs for the manufacture and balance of system components
Period *Obligations*
08/15/79-04/30/80 **FY80: TOTAL: \$22,308**
Prin Invest *NASA Tech Officer* *CASE Category*
Jacobson, J. E. LERC/Scudder, L. R. 72-Economics
Hammond, R. W.
James, B. E.

NSG 3307 **Georgia Institute of Technology** **2140**
A new numerical approach for compressible viscous flows
Period *Obligations*
09/10/79-09/08/81 **FY80: \$52,996 TOTAL: \$98,674**
Prin Invest *NASA Tech Officer* *CASE Category*
Wu, J. LERC/McFarland, E. R. 41-Aero Engr
Lekoudis, S. LERC/Sockol, P. M.

NSG 5012 **Georgia Institute of Technology** **2141**
Research in millimeter wave techniques
Period *Obligations*
06/15/74-02/28/81 **FY80: \$50,000 TOTAL: \$636,434**
Prin Invest *NASA Tech Officer* *CASE Category*
Forsythe, R. F. GSFC/King, J. L. 45-Elec Engr
GSFC/Shue, T. C.

NSG 7069 **Georgia Institute of Technology** **2142**
Photocatalytic synthesis on planetary surfaces, molecular bases for the adaptation of halophilic microorganisms
Period *Obligations*
09/15/74-09/30/80 **FY80: TOTAL: \$72,766**
Prin Invest *NASA Tech Officer* *CASE Category*
Hubbard, J. S. HD-SB/Young, R. S. 51-Biological Sci

NAG 8-3 **Morehouse College** **2143**
Numerical differentiation and interpolation procedure with error estimates for nonexact data
Period *Obligations*
02/15/80-02/14/81 **FY80: \$26,057 TOTAL: \$26,057**
Prin Invest *NASA Tech Officer* *CASE Category*
Bozeman, R. E. MSFC/Campbell, W. 21-Mathematics
MSFC/Kent, M. I.

NAS 5-23571 **Morehouse College** **2144**
Application of medical information management system for medical record keeping
Period *Obligations*
06/09/76-10/08/81 **FY80: \$50,000 TOTAL: \$122,865**
Prin Invest *NASA Tech Officer* *CASE Category*
Barreras, R. J. GSFC/Alterescu, S. 56-Medical Sciences
GSFC/Friedman, D. S.

NSG 7652 **Morehouse College** **2145**
The matrix-isolation infrared-laser-Raman study of the molecular structure of chlorine nitrate
Period *Obligations*
09/30/79-09/30/80 **FY80: TOTAL: \$45,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Hall, J. H. HD-LU/Pohly, J. G. 12-Chemistry
JPL/Watson, R. T.

NAS 5-26129 **University of Georgia** **2146**
Urban area change detection procedure with remote sensing data
Period *Obligations*
04/23/80-12/30/80 **FY80: \$19,961 TOTAL: \$19,961**
Prin Invest *NASA Tech Officer* *CASE Category*
Jensen, J. R. GSFC/Toll, D. 21-Mathematics

NASW 3247 **University of Georgia** **2147**
For operation of Cosmic
Period *Obligations*
05/01/79-04/30/81 **FY80: \$250,000 TOTAL: \$622,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Hale, H. HD-ET/Harrison, J. O. 22-Computer Science

NAS13-121 **University of Georgia** **2148**
Investigation studies to apply LANDSAT technology to assess the structure and potential waste assimilation capability of wetlands located along the Savannah River from Augusta to Savannah
Period *Obligations*
06/01/79-05/31/80 **FY80: TOTAL: \$20,671**
Prin Invest *NASA Tech Officer* *CASE Category*
Cooley, J. L. NSTL/Butera, M. K. 32-Geological Sci
Odum, E. P.

NAS13-123 **University of Georgia** **2149**
Conduct short courses in remote sensing
Period *Obligations*
05/18/79-05/31/80 **FY80: TOTAL: \$19,946**
Prin Invest *NASA Tech Officer* *CASE Category*
Welch, R. NSTL/Atwell, B. H. Geological Sci

NASA'S UNIVERSITY PROGRAM **GEORGIA (Continued)**

NAS13-137 **University of Georgia** **2150**
Development of a technique to assess wetlands waste assimilation
potential incorporating LANDSAT technology
Period *Obligations*
12/20/79-01/03/81 FY80: \$40,298 TOTAL: \$40,298
Prin Invest *NASA Tech Officer* *CASE Category*
Cooley, J. L. NSTL/Butera, M. K. 39-Env Sci, NEC

NAS13-157 **University of Georgia** **2151**
Remote sensing for state use
Period *Obligations*
07/18/80-07/17/81 FY80: \$18,218 TOTAL: \$18,218
Prin Invest *NASA Tech Officer* *CASE Category*
Welch, R. NSTL/Atwell, B. H. 32-Geological Sci

NGR 11-003-037 **University of Georgia** **2152**
Interpretation of stratigraphy and geologic mapping of Mars from
Mariner Mars 1971 television pictures
Period *Obligations*
05/24/72-04/14/79 FY80 TOTAL: \$79,800
Prin Invest *NASA Tech Officer* *CASE Category*
Howard, J. H. HD-SL/Boyce, J. M. 32-Geological Sci

NSG 7433 **University of Georgia** **2153**
Irradiation effects on the surface of the Moon, Mercury, asteroids,
and other airless solar system bodies due to solar high energy
particles and cosmic rays
Period *Obligations*
03/01/78-02/28/81 FY80: \$25,690 TOTAL: \$66,367
Prin Invest *NASA Tech Officer* *CASE Category*
Wenner, D. B. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NSG 7539 **University of Georgia** **2154**
Comparative analysis of terrestrial and Martian labyrinth
terrains
Period *Obligations*
03/01/79-02/28/81 FY80: \$21,000 TOTAL: \$35,650
Prin Invest *NASA Tech Officer* *CASE Category*
Brook, G. HD-SL/Boyce, J. M. 32-Geological Sci
HD-SL/Quaide, W. L.

HAWAII

SAG 2-59 **University of Hawaii** **2155**
Submillimeter observations of solar limb brightening in the solar
eclipse of 31 July 1981
Period *Obligations*
10/01/80-09/30/81 FY80: \$26,000 TOTAL: \$26,000
Prin Invest *NASA Tech Officer* *CASE Category*
Becklin, E. ARC/Haughney, L. C. 11-Astronomy
Jefferies, J. T.
Lindsay, C.

SAGW 37 **University of Hawaii** **2156**
User support and data reduction and analysis of lunar core
images
Period *Obligations*
03/01/80-05/31/81 FY80: \$46,371 TOTAL: \$46,371
Prin Invest *NASA Tech Officer* *CASE Category*
McCord, T. B. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

SAGW 42 **University of Hawaii** **2157**
Research on remote sensing and geologic studies of the lunar
crust
Period *Obligations*
03/01/80-02/28/81 FY80: \$61,094 TOTAL: \$61,094
Prin Invest *NASA Tech Officer* *CASE Category*
Hawke, B. R. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

SAGW 61 **University of Hawaii** **2158**
International Conference on Infrared Astronomy
Period *Obligations*
05/01/80-04/30/81 FY80: \$4,035 TOTAL: \$4,035
Prin Invest *NASA Tech Officer* *CASE Category*
Cruikshank, D. P. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Murphy, R. E.

SAGW 65 **University of Hawaii** **2159**
Hold a colloquium on the satellites of Jupiter and publish the
results in a book same title
Period *Obligations*
03/01/80-03/01/81 FY80: \$14,308 TOTAL: \$14,308
Prin Invest *NASA Tech Officer* *CASE Category*
Unavailable HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Murphy, R. E.

SAS 5-25181 **University of Hawaii** **2160**
Modifications to and operations and maintenance of the lunar
laser observatory at the University of Hawaii in support of various
satellite missions
Period *Obligations*
08/09/78-10/31/80 FY80: \$561,216 TOTAL: \$818,226
Prin Invest *NASA Tech Officer* *CASE Category*
Jefferies, J. T. GSFC/White, W. W. 11-Astronomy

SAS 5-25376 **University of Hawaii** **2161**
Data System test evaluation of global data sets of global data
sets
Period *Obligations*
01/23/79-08/22/80 FY80: TOTAL: \$54,775
Prin Invest *NASA Tech Officer* *CASE Category*
Sadler, J. C. GSFC/Greaves, J. R. 31-Atmos Sci
GSFC/Stetina, F. L.

NASA'S UNIVERSITY PROGRAM HAWAII (Continued)

NAS 8-33219	University of Hawaii	2162
The modeling of the solar upper photosphere lower chromosphere based upon ATM data		
<i>Period</i>		<i>Obligations</i>
03/01/79-02/28/81	FY80:	TOTAL: \$65,796
<i>Prin. Invest.</i>	<i>NAS Tech. Officer</i>	<i>CASR Category</i>
Heasley, J. N.	MSFC/DeLoach, A. C.	13-Physics
	MSFC/Snoddy, W. C.	

NAS 9-16048	University of Hawaii	2163
Life sciences flight experiment; surface chemical bubble formation		
<i>Period</i>	<i>Obligations</i>	
01/17/80-10/31/80	FY80: \$5,450	TOTAL: \$5,450
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASF Category</i>
Darriso, J. F.	JSC/Peck, E. E.	59-Life Sci. NEC

NASW 2801	University of Hawaii	2164
Construction of the three meter infrared telescope facility at Mauna Kea, Hawaii		
<i>Period</i>	<i>Obligations</i>	
06/01/75-12/31/79	FY80: \$272,909	TOTAL: \$7,939,364
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>C&SF Category</i>
Jefferies, J. T.	HD-SL/Weir, J. F.	11-Astronomy
	HD-SL/Brunk, W. E.	

NASA 3159		University of Hawaii		2165	
Provision of support during the preparatory stage for operation of the NASA Infrared Telescope Facility					
Period		Obligations			
01/01/78-12/31/80		FY80: \$1,261,600	TOTAL	\$1,742,064	
Prim Invest		NASA Tech Officer		CASE Category	
Jefferies, J T		HD-SL/Brunk, W. E.		11-Astronomy	
		HD-SL/Murphy, R. E.			

NSF 12-001-011	University of Hawaii	2166
Research in coronal and chromospheric physics		
<i>Period</i>	<i>Obligations</i>	
11/16/64-11/30/80	FY80: \$256,000 TOTAL: \$4,348,234	
<i>Prin Invest</i>	<i>NSF Tech Officer</i>	<i>CSF Category</i>
Jeffries, J. T	HDS-ST/Chipman, E.	11-As

SGL 12-001-057	University of Hawaii	2167
Research in planetary studies		
<i>Period</i>	<i>Obligations</i>	
05/21/68-06/30/81	FY80: \$909,000	TOTAL: \$4,980,472
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jefferies, J T	HD-SL/Brunk, W E.	11-Astronomy
	HD-SL/Murphy, R. E.	

NSR 12-001-109		University of Hawaii	2168
N-heterocyclic compounds role in chemical evolution distribution in meteorites ancient sediments and as products of spark discharge reactions			
<i>Period</i>	<i>Obligations</i>		
06/26/72-04/14/81	FY80: \$40,966	TOTAL: \$305,341	
<i>Prin Invest</i>	<i>NSF Tech Officer</i>	<i>NSF Category</i>	
Folsome, C. E.	HD-SB/Devincenzi, D. L.	12-Chemistry	

NGR 12-001-127		University of Hawaii	2169
Operation of the Haleakala Lunar Ranging Observatory			
Period	Obligations		
06/01/73-10/31/79	FY80.	TOTAL: \$1,912,200	
Prin Invest	SA&I Tech Officer	CASE Category	
Jefferies, J. T.	GSFC/White, W.	32-Geological Sci	
Cushman, S. F.	HD-ER/Elinn, E. A.		

NSG 5159	University of Hawaii	2170
Determination of highly reflective cloud frequencies over the tropical oceans		
<i>Period</i>		<i>Obligations</i>
02/14/77-01/15/79	FY80	TOTAL: \$17,000
<i>Prin Invest</i>	<i>NSA Tech Officer</i>	<i>CASE Category</i>
Ramage, C. S.	GSFC/Theon, J. S.	31-Atmos Sci

NSG 5203		University of Hawaii	2171
Geochemical data synthesis and analyses			
Period		Obligations	
12/01/77-01/31/79	FY80		TOTAL: \$30,700
Prin Invest	NSA Tech Officer		CASF Category
Philpotts, J. A.	GSFC/Nava, D. F.		32-Geological Sci

NSG 5231	University of Hawaii	2172
Determination of cosmic abundance of boron		
<i>Period</i>	<i>Obligations</i>	
02/19/78-02/18/79	FY80-	TOTAL: \$5,447
<i>Prin Invest</i>	<i>NSA Lia Officer</i>	<i>(45F Category)</i>
Boesgaard, A. M.	GSFC/Kupperman, J. F., Jr	11-Astronomy

NSG 5317	University of Hawaii	2173
Ground based solar observations for the Solar Maximum Mission (SMM)		
Period	Obligation	
01/15/79-02/14/81	FY80. \$39,486	TOTAL: \$61,603
Prin Invest	NSA Tech Officer	C 45F Category
Jefferies, J. T.	GSFC/Donley, J. L.	31-Atmos Sci

NSG 5326	University of Hawaii	2174
Investigation of flare protons in the Sun's atmosphere		
Period	Origination	
02/01/79-01/31/81	FY80: \$14,794	TOTAL: \$17,375
Prin. Invest.	NSA Tech. Officer	CASE Category
Orrell, F. O.	GSFC/Donley, J. L.	31-Atmos Sci

NSG 7179	University of Hawaii	2175
Crustal deformation observations		
Period	Obligation	
10/20/75-12/31/80	FY80: \$90,000	TOTAL: \$681,472
Prin Invest	NSA Tech Officer	C4MF Category
Berg, E.	HD-ER/Finley, C. J.	19-Phys Sci, NEC
Sutton, G. H.	HD-ER/Flinn, E. A.	
Laurila, S. H.		

NASA'S UNIVERSITY PROGRAM HAWAII (Continued)

NSG 7312 University of Hawaii 2176
Remote compositional mapping of the lunar surface
Period Obligations
02/01/77-03/31/81 FY80: \$180,000 TOTAL: \$931,112
Prin Invest NASA Tech Officer CASE Category
McCord, T. B. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NSG 7323 University of Hawaii 2177
Research in planetary astronomy
Period Obligations
02/01/77-01/31/81 FY80: \$115,037 TOTAL: \$355,329
Prin Invest NASA Tech Officer CASE Category
McCord, T. B. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Murphy, R. E.

NSG 7403 University of Hawaii 2178
Study of physical processes affecting water ice on outer solar system objects
Period Obligations
12/01/77-05/31/81 FY80 TOTAL: \$43,326
Prin Invest NASA Tech Officer CASE Category
Pitcher, C. B. HD-SL/Boyce, J. M. 32-Geological Sci

NSG 7423 University of Hawaii 2179
Analysis of depth profiles of cosmic ray products in rocks
Period Obligations
03/01/78-10/31/79 FY80 TOTAL: \$9,960
Prin Invest NASA Tech Officer CASE Category
Russ, G. P. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NSG 7443 University of Hawaii 2180
Mineralogy of the surfaces of Mercury and Mars
Period Obligations
02/01/78-04/30/79 FY80: TOTAL: \$40,048
Prin Invest NASA Tech Officer CASE Category
McCord, T. B. HD-SL/Dwornik, S. F. 32-Geological Sci

NSG 7462 University of Hawaii 2181
An investigation of the mineralogy and petrology of meteorite parent bodies utilizing reflectance spectroscopy
Period Obligations
07/15/78-02/28/81 FY80: \$37,072 TOTAL: \$52,072
Prin Invest NASA Tech Officer CASE Category
Gaffey, M. J. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NSG 7536 University of Hawaii 2182
Research in ultraviolet spectroscopy
Period Obligations
11/01/78-10/31/80 FY80: \$107,400 TOTAL: \$207,800
Prin Invest NASA Tech Officer CASE Category
Jefferies, J. T. HD-ST/Chipman, E. 13-Physics

NSG 7590 University of Hawaii 2183
Mars surface unit definition characterization
Period Obligations
03/01/79-09/30/80 FY80: \$140,000 TOTAL: \$204,854
Prin Invest NASA Tech Officer CASE Category
McCord, T. B. HD-SL/Quaide, W. L. 31-Atmos Sci
HD-SL/Royce, J. M.

NSG 7597 University of Hawaii 2184
Geophysics and thermal evolution of small planetary objects
Period Obligations
05/01/79-01/31/81 FY80: TOTAL: \$30,446
Prin Invest NASA Tech Officer CASE Category
Gaffey, M. J. HD-SL/Quaide, W. L. 32-Geological Sci

NSG 7633 University of Hawaii 2185
Thermophysics of satellites and asteroids
Period Obligations
07/01/79-09/30/80 FY80: TOTAL: \$12,142
Prin Invest NASA Tech Officer CASE Category
Morrison, D. HD-SL/Boyce, J. M. 13-Physics

IDAHO

NSG 5-93 University of Idaho 2186
Pipeline processor design for communication systems
Period Obligations
08/01/80-07/31/81 FY80: \$18,757 TOTAL: \$18,757
Prin Invest NASA Tech Officer CASE Category
Maki, G. K. GSFC/Miller, W. H. 22-Computer Science
GSFC/Morakis, J. C.

NSG 2367 University of Idaho 2187
Perfluorether triazine elastomers
Period Obligations
03/01/79-02/28/81 FY80: \$10,481 TOTAL: \$20,281
Prin Invest NASA Tech Officer CASE Category
Korus, R. A. ARC/Rosser, R. W. 12-Chemistry
ARC/Parker, J. A.

ILLINOIS

NSG 1-5 Illinois Institute of Technology 2188
Structural optimization with damage tolerance constraints
Period Obligations
11/15/79-11/14/80 FY80: \$40,000 TOTAL: \$40,000
Prin Invest NASA Tech Officer CASE Category
Haftka, R. T. LARC/Starnes, J. H., Jr. 41-Aero Engr

NASA'S UNIVERSITY PROGRAM ILLINOIS (Continued)

NAG 1-74 **Illinois Institute of Technology** **2189**
Optimization of flow manipulation placement ahead of wind-tunnel contraction
Period *Obligations*
07/01/80-06/30/81 **FY80: \$27,440** **TOTAL: \$27,440**
Prin Invest *NASA Tech Officer* *CASE Category*
Tan-atchat, J. LARC/Harvey, W. D. 41-Aero Engr
LARC/Stainback, P. C.

NSG 1266 **Illinois Institute of Technology** **2190**
Automated sizing of aerospace structures under multiple constraints
Period *Obligations*
12/01/75-10/31/80 **FY80: \$32,000** **TOTAL: \$180,610**
Prin Invest *NASA Tech Officer* *CASE Category*
Haftka, R. LARC/Adelman, H. M. 41-Aero Engr

NSG 1591 **Illinois Institute of Technology** **2191**
Management of turbulent flow structures in boundary layers aimed at drag reduction
Period *Obligations*
01/15/79-01/14/81 **FY80: \$40,500** **TOTAL: \$80,622**
Prin Invest *NASA Tech Officer* *CASE Category*
Nagib, H. M. LARC/Hefner, J. N. 41-Aero Engr
Corke, T. C. LARC/Bushnell, D. M.

NSG 3220 **Illinois Institute of Technology** **2192**
Management of turbulence and vorticity in contracting flows with applications to simulations of flight fan noise
Period *Obligations*
09/15/78-11/14/80 **FY80:** **TOTAL: \$117,340**
Prin Invest *NASA Tech Officer* *CASE Category*
Nagib, H. M. LERC/Groeneweg, J. F. 41-Aero Engr
Wigeland, R. A.

NAG 3-53 **Northwestern University** **2193**
Mechanisms of lean limit extinction
Period *Obligations*
04/04/80-04/03/81 **FY80: \$30,000** **TOTAL: \$30,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Law, C. K. LERC/Baker, C. E. 46-Mech Engr

NAG 8-326 **Northwestern University** **2194**
Observations of distant abell clusters discovered as X-ray sources by High Energy Astronomical Observatory-A-1 and observations of IC 3976 and NGC 4410 A/B
Period *Obligations*
03/01/80-02/28/81 **FY80: \$13,000** **TOTAL: \$13,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Ulmer, M. P. MSFC/Jones, J. B., Jr. 11-Astronomy
Bhavsar, S.
Shulman, S.

NAG 8-367 **Northwestern University** **2195**
Research in galactic and extragalactic X-ray astronomy
Period *Obligations*
08/20/80-08/19/81 **FY80: \$13,688** **TOTAL: \$13,688**
Prin Invest *NASA Tech Officer* *CASE Category*
Ulmer, M. P. MSFC/Stone, J. F. 11-Astronomy

NAG 8-368 **Northwestern University** **2196**
Observations of abell clusters discovered as X-ray sources by HEAO-A-1, II
Period *Obligations*
08/15/80-08/14/81 **FY80: \$13,747** **TOTAL: \$13,747**
Prin Invest *NASA Tech Officer* *CASE Category*
Ulmer, M. P. MSFC/Stone, J. F. 11-Astronomy

NAG 8-33010 **Northwestern University** **2197**
Research in galactic and extragalactic astronomy HEAO-I
Period *Obligations*
06/01/78-09/30/81 **FY80:** **TOTAL: \$38,383**
Prin Invest *NASA Tech Officer* *CASE Category*
Ulmer, M. P. MSFC/Jones, J. B., Jr. 11-Astronomy

NAG 8-33354 **Northwestern University** **2198**
Observations of abell cluster
Period *Obligations*
07/15/79-07/14/80 **FY80:** **TOTAL: \$7,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Ulmer, M. P. MSFC/Jones, J. B., Jr. 11-Astronomy

NAG 8-33881 **Northwestern University** **2199**
Thermocapillary flows and their stability: Effects of surface layers and contamination
Period *Obligations*
07/11/80-07/10/83 **FY80: \$123,874** **TOTAL: \$123,874**
Prin Invest *NASA Tech Officer* *CASE Category*
Davis, S. H. MSFC/Moore, W. W. 19-Phys Sci, NEC
MSFC/Schafer, C. F.

NCC 3-13 **Northwestern University** **2200**
Interdisciplinary collaboration in tribology
Period *Obligations*
05/19/80-05/18/81 **FY80: \$18,757** **TOTAL: \$18,757**
Prin Invest *NASA Tech Officer* *CASE Category*
Cheng, H. S. LERC/Wedeven, L. D. 46-Mech Engr

NGL 14-007-041 **Northwestern University** **2201**
A study of celestial objects of high angular momenta
Period *Obligations*
02/18/66-10/31/80 **FY80:** **TOTAL: \$265,251**
Prin Invest *NASA Tech Officer* *CASE Category*
Huang, S. S. HD-SC/Weiler, E. J. 11-Astronomy
HD-SC/Rosendhal, J. D.

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NASA'S UNIVERSITY PROGRAM
ILLINOIS (Continued)

NSG 2328 **Northwestern University** **2202**
Impact of international noise abatement regulations on the US aircraft manufacturing and air carrier industries
Period *Obligations*
05/15/78-10/15/80 **FY80: \$7,919 TOTAL: \$48,619**
Prin Invest *NASA Tech Officer* *CASE Category*
Spencer, F. A. ARC/Faye, A. E. 41-Aero Engr

NSG 3143 **Northwestern University** **2203**
Dynamic load and lubrication of spiral bevel gears
Period *Obligations*
03/15/77-12/15/80 **FY80 TOTAL: \$103,637**
Prin Invest *NASA Tech Officer* *CASE Category*
Cheng, H. S. LERC/Coy, J. J. 46-Mech Engr

NAS 9-16035 **Rush University** **2204**
Response to sudden torques about the ankle man: The myotatic reflex
Period *Obligations*
01/17/80-10/31/80 **FY80: \$22,500 TOTAL: \$22,500**
Prin Invest *NASA Tech Officer* *CASE Category*
Gottlieb, G. L. JSC/Kirby, R. 59-Life Sci, NEC

NCC 3-7 **Southern Illinois University - Carbondale** **2205**
Lighting protection for wind turbines study
Period *Obligations*
03/01/80-02/28/81 **FY80: \$106,673 TOTAL: \$106,673**
Prin Invest *NASA Tech Officer* *CASE Category*
Dodd, C. W. LERC/Bankatis, H. V. 45-Elec Engr
Smith, J. G. LERC/Finnegan, P. M.
McCalla, T. M.

NAG 5-53 **University of Chicago** **2206**
Observations of highly obscured interstellar clouds
Period *Obligations*
05/01/80-04/30/81 **FY80 \$14,000 TOTAL: \$14,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Frisch, P. C. GSFC/Bogges, A. 11-Astronomy

NAGW 4 **University of Chicago** **2207**
Submillimeter astronomy at the NASA University of Hawaii 3-meter infrared telescope facility
Period *Obligations*
10/01/79-09/30/81 **FY80: \$112,758 TOTAL: \$112,758**
Prin Invest *NASA Tech Officer* *CASE Category*
Hildebrand, R. H. HD-SL/Brunk, W. E. 11-Astronomy
HD St./Murphy, R. E.

NAS 2-6551 **University of Chicago** **2208**
Pioneer F/G charged particle experiment data analysis
Period *Obligations*
08/09/71-09/30/80 **FY80: \$269,800 TOTAL: \$1,939,161**
Prin Invest *NASA Tech Officer* *CASE Category*
Simpson, J. A. ARC/Hall, C. F. 11-Astronomy
ARC/Porter, D. L.

NAS 5-20674 **University of Chicago** **2209**
Quasi ray electrons experiment for ISEE-C heliocentric orbit
Period *Obligations*
10/24/74-12/31/81 **FY80: \$123,957 TOTAL: \$1,282,375**
Prin Invest *NASA Tech Officer* *CASE Category*
Meyer, P. GSFC/Gallagher, W. F. 13-Physics
GSFC/Davis, M. A.

NAS 5-24430 **University of Chicago** **2210**
Design, develop, fabricate and testing of a scientific instrument for an experiment to measure cosmic ray isotopes
Period *Obligations*
12/01/77-09/30/83 **FY80: \$30,000 TOTAL: \$1,246,316**
Prin Invest *NASA Tech Officer* *CASE Category*
Simpson, J. A. GSFC/Davis, M. A. 13-Physics

NAS 5-25731 **University of Chicago** **2211**
Interplanetary monitoring platform-J data reduction and analysis
Period *Obligations*
12/01/79-09/30/80 **FY80: \$97,885 TOTAL: \$97,885**
Prin Invest *NASA Tech Officer* *CASE Category*
Simpson, J. A. GSFC/Corrigan, J. P. 11-Astronomy

NAS 5-26076 **University of Chicago** **2212**
Definition phase for Transition Radiation and Ionization Calorimeter (TRIC) telescope
Period *Obligations*
03/21/80-09/30/80 **FY80: \$139,145 TOTAL: \$139,145**
Prin Invest *NASA Tech Officer* *CASE Category*
Muller, D. GSFC/Ormes, J. F. 11-Astronomy

NAS 5-26099 **University of Chicago** **2213**
Plan and establish preliminary interfaces for the cosmic ray nuclei experiment
Period *Obligations*
03/21/80-10/20/80 **FY80: \$24,282 TOTAL: \$24,282**
Prin Invest *NASA Tech Officer* *CASE Category*
Meyer, P. GSFC/Underwood, C. 11-Astronomy

NAS 8-32828 **University of Chicago** **2214**
Elemental composition and energy spectra of cosmic ray nuclei
Period *Obligations*
10/28/77-11/15/82 **FY80: \$1,446,000 TOTAL: \$3,545,103**
Prin Invest *NASA Tech Officer* *CASE Category*
Meyer, P. MSFC/Guynes, B. V. 31-Atmos Sci
Muller, D. MSFC/Ise, R.

NAS 8-33350 **University of Chicago** **2215**
Guest investigator effort on the High Energy Astronomy Observatory C-2
Period *Obligations*
05/30/79-05/30/81 **FY80: TOTAL: \$25,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Meyer, P. MSFC/Jones, J. B., Jr. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
ILLINOIS (Continued)**

NCA 2-108902 **University of Chicago** **2216**
Numerical experiments in galactic dynamics and planetary formation
Period *Obligations*
11/15/78-11/14/80 FY80: \$13,292 TOTAL: \$20,992
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Miller, R. H. ARC/Smith, B. F. 11-Astronomy
Arnett, W. D.

NGI 14-001-001 **University of Chicago** **2217**
Investigation of effects of solar wind in interplanetary space
Period *Obligations*
08/01/60-12/31/81 FY80: \$62,500 TOTAL: \$1,241,572
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parker, E. N. HD-SC Kaluzienski, L. J. 11-Astronomy
HD-SC Opp. A. G.

NGI 14-001-005 **University of Chicago** **2218**
High altitude balloon investigations on composition, energy spectrum and intensity of primary cosmic radiation at high and intermediate geomagnetic latitudes
Period *Obligations*
05/01/61-10/31/80 FY80: \$400,000 TOTAL: \$6,335,258
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Meyer, P. HD-SC Gilman, D. A. 11-Astronomy
HD-SC Opp. A. G.

NGI 14-001-006 **University of Chicago** **2219**
Experimental and theoretical studies of energetic particles and electrodynamical processes in interplanetary space and in vicinity of planets
Period *Obligations*
08/01/61-12/31/80 FY80: \$440,000 TOTAL: \$6,892,396
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Simpson, J. A. HD-SC Gilman, D. A. 11-Astronomy
HD-SC Opp. A. G.

NGI 14-001-010 **University of Chicago** **2220**
Research and investigation of origin, age and composition of meteorites
Period *Obligations*
03/11/63-03/31/81 FY80: \$121,330 TOTAL: \$1,755,503
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anders, E. HD-SI French, B. M. 32-Geological Sci
HD-SI Quaide, W. I.

NGI 14-001-167 **University of Chicago** **2221**
Lunar sample analysis
Period *Obligations*
03/29/72-01/31/81 FY80: \$150,480 TOTAL: \$1,738,830
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anders, E. JSC Harris, J. W. 13-Physics

NGI 14-001-169 **University of Chicago** **2222**
Lunar sample analysis
Period *Obligations*
01/19/71-01/31/81 FY80: \$139,310 TOTAL: \$1,005,608
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Clayton, R. N. JSC/Harris, J. W. 12-Chemistry

NGI 14-001-171 **University of Chicago** **2223**
Lunar sample analysis
Period *Obligations*
01/19/71-01/31/81 FY80: \$84,269 TOTAL: \$703,652
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, J. V. JSC/Harris, J. W. 13-Physics

NGI 14-001-258 **University of Chicago** **2224**
Advanced technical developments in support of scientific experiments in space
Period *Obligations*
06/15/73-03/31/81 FY80: \$245,996 TOTAL: \$1,795,996
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Meyer, P. HD-SP/Henniger, L. W. 99-Multi-Discip
Muller, D. HD-SP/Taylor, T. C.
Simpson, J. A.

NGR 14-001-008 **University of Chicago** **2225**
Meteorological interpretation of satellite radiation data
Period *Obligations*
09/01/70-10/31/80 FY80: \$75,000 TOTAL: \$1,522,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fujita, T. T. HD-EB Dodge, J. C. 31-Atmos Sci

NGR 14-001-135 **University of Chicago** **2226**
Feasibility of the alpha scattering technique for Martian surface analysis
Period *Obligations*
02/25/69-01/31/81 FY80: \$100,000 TOTAL: \$831,844
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Turkevich, A. I. HD-SI French, B. M. 32-Geological Sci
HD-SI Quaide, W. I.

NGR 14-001-147 **University of Chicago** **2227**
Interferometric high-resolution spectroscopy of optical interstellar lines
Period *Obligations*
03/18/70-06/30/81 FY80: \$58,279 TOTAL: \$321,048
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hobbs, L. M. HD-SC Weiler, E. J. 11-Astronomy
HD-SC Boggess, N. W.

NGR 14-001-225 **University of Chicago** **2228**
Physiology of the vestibular system of the squirrel monkey
Period *Obligations*
05/12/67-11/30/80 FY80: \$45,000 TOTAL: \$467,893
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goldberg, J. M. ARC Dauntton, N. G. 51-Biological Sci
Fernandez, C.

NASA'S UNIVERSITY PROGRAM
ILLINOIS (Continued)

NSG 14-001-227 **University of Chicago** **2229**
 Photometry of galactic and extragalactic far infrared sources using
 the 91.5 cm airborne infrared telescope
Period *Obligations*
 02/27/73-03/31/81 FY80: \$126,100 TOTAL: \$686,665
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Harper, D. A., Jr. ARC/Haughney, I. C. 11-Astronomy

NSG 14-001-249 **University of Chicago** **2230**
 Physical properties of solar nebula as deduced from chondrites
Period *Obligations*
 05/14/73-03/31/81 FY80: \$141,247 TOTAL: \$778,187
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Grossman, I. HD-SI French, B. M. 32-Geological Sci
 HD-SI Quade, W. I.

NSG 2057 **University of Chicago** **2231**
 Study of sensitive detection system for far infrared astronomy
Period *Obligations*
 12/01/74-10/31/80 FY80: \$59,694 TOTAL: \$237,766
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hildebrand, R. H. ARC/Haughney, I. C. 11-Astronomy
 ARC/Gillespie, C. M.

NSG 5202 **University of Chicago** **2232**
 Study of interstellar clouds containing atomic and molecular
 constituents
Period *Obligations*
 09/01/77-08/31/79 FY80 TOTAL: \$12,467
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Simpson, J. A. GSFC/Kupperian, J. E., Jr. 11-Astronomy

NSG 5311 **University of Chicago** **2233**
 Ultraviolet observations of copernicus data
Period *Obligations*
 12/15/78-12/14/79 FY80 TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Simpson, J. A. GSFC/Kupperian, J. E., Jr. 11-Astronomy

NSG 5402 **University of Chicago** **2234**
 Research of precipitation growth in convective clouds
Period *Obligations*
 08/01/79-01/31/81 FY80 TOTAL: \$26,474
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Srivastava, R. C. GSFC/Adler, R. F. 31-Atmos Sci

NSG 5405 **University of Chicago** **2235**
 Observations of interstellar lines in stars toward the North polar
 spur
Period *Obligations*
 09/15/79-09/14/80 FY80: \$12,000 TOTAL: \$12,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Frisch, P. C. GSFC/Bogges, A. 11-Astronomy

NSG 7212 **University of Chicago** **2236**
 Nuclear astrophysics effects in meteoritic and lunar material
Period *Obligations*
 03/01/76-02/28/81 FY80: \$47,404 TOTAL: \$204,645
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Schramm, D. N. HD-SI/Quade, W. I. 32-Geological Sci
 HD-SI/French, B. F.

NSG 7303 **University of Chicago** **2237**
 Applications of electron microscopy in molecular exobiology and
 extraterrestrial research
Period *Obligations*
 12/01/76-12/31/82 FY80: TOTAL: \$105,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Fernandez, H. HD-SB/Soffen, G. A. 51-Biological Sci

NSG 7356 **University of Chicago** **2238**
 Balloon-borne spectroscopy of stratospheric constituents
Period *Obligations*
 06/01/77-12/31/79 FY80 TOTAL: \$142,996
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kaplan, I. D. HD-ST/Seals, R. K., Jr. 31-Atmos Sci
 HD-ST/Tilford, S. G.

NSG 7464 **University of Chicago** **2239**
 Studies of the energy spectrum of cosmic ray electrons
Period *Obligations*
 07/01/78-11/01/80 FY80 TOTAL: \$160,332
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Muller, D. HD-SC/Kaluzański, L. J. 31-Atmos Sci

NSG 7532 **University of Chicago** **2240**
 Chemical analysis by alpha particle techniques on a cometary
 mission
Period *Obligations*
 01/01/79-04/01/80 FY80: \$25,000 TOTAL: \$123,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Turkevich, A. I. HD-SI French, B. M. 32-Geological Sci
 HD-SI Quade, W. I.

NSG 7550 **University of Chicago** **2241**
 Ion and electron microprobe analyses of meteoritic minerals
Period *Obligations*
 02/01/79-07/31/81 FY80 TOTAL: \$54,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Smith, J. V. HD-SI French, B. M. 32-Geological Sci
 HD-SI Quade, W. I.

NSG 3-48 **University of Illinois - Chicago Circle** **2242**
 Synthesis and optimization of spiral bevel gear tooth surfaces
Period *Obligations*
 03/21/80-08/20/81 FY80: \$51,415 TOTAL: \$51,415
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Litvin, E. I. IERC/Coy, J. J. 46-Mech Engr

NASA'S UNIVERSITY PROGRAM **ILLINOIS (Continued)**

NAS 8-32993 **University of Illinois - Chicago Circle** **2243**
Spacelab experiment definition relating to basic soil behavior and dynamic properties

Period	Obligations
04/01/78-02/28/79	FY80: TOTAL: \$10,000
Prin Invest	NASA Tech Officer CASE Category
Silver, M. L.	MSFC/Costes, N. 44-Civil Engr
	MSFC/Campbell, W.

NAG 1-76 **University of Illinois, Urbana** **2244**
The study of wake pressure recovery as a factor in airfoil design

Period	Obligations
06/15/80-06/14/81	FY80: \$39,900 TOTAL: \$39,900
Prin Invest	NASA Tech Officer CASE Category
Ormsbee, A. I.	LARC/Somers, D. M. 41-Aero Engr

NAG 1-90 **University of Illinois, Urbana** **2245**
Multi-level semantic analysis and problem solving in the flight domain

Period	Obligations
07/11/80-07/10/81	FY80: \$74,900 TOTAL: \$74,900
Prin Invest	NASA Tech Officer CASE Category
Chien, R. T.	LARC/Hankins, W. W. 41-Aero Engr
	LARC/Pennington, J. E.

NAG 3-60 **University of Illinois, Urbana** **2246**
The mechanisms of flame holding in the wake of a bluff body

Period	Obligations
05/21/80-05/20/81	FY80: \$30,000 TOTAL: \$30,000
Prin Invest	NASA Tech Officer CASE Category
Strehlow, R. A.	LERC/Baker, C. E. 41-Aero Engr

NAG 5-84 **University of Illinois, Urbana** **2247**
Study the dynamics of old supernova remnants by comparison of multi-wavelength data

Period	Obligations
06/25/80-12/24/80	FY80: \$2,700 TOTAL: \$2,700
Prin Invest	NASA Tech Officer CASE Category
Dickel, J. R.	GSFC/Gull, T. R. 11-Astronomy

NAG 5-85 **University of Illinois, Urbana** **2248**
Research of mass loss from selected supergiant stars

Period	Obligations
07/01/80-02/28/81	FY80: \$12,000 TOTAL: \$12,000
Prin Invest	NASA Tech Officer CASE Category
Lamb, S. A.	GSFC/Bogges, A. 11-Astronomy
Sargent, W. L.	

NAG 8-310 **University of Illinois, Urbana** **2249**
Investigation of X-ray spectra of accreting nonmagnetic degenerate dwarfs

Period	Obligations
03/01/80-02/28/81	FY80: \$6,000 TOTAL: \$6,000
Prin Invest	NASA Tech Officer CASE Category
Lamb, D. Q.	MSFC/Jones, J. B. 11-Astronomy
Mason, K. O.	
Brandnardi, G.	

NAG 8-317 **University of Illinois, Urbana** **2250**
Surveys of old supernova remnants and study of the young supernova remnants Cassiopeia A and Tycho of the high energy astronomical observatory-B guest observer proposal

Period	Obligations
02/25/80-02/24/81	FY80: \$15,000 TOTAL: \$15,000
Prin Invest	NASA Tech Officer CASE Category
Dickel, J. R.	MSFC/Jones, J. B. 11-Astronomy

NAS 5-24275 **University of Illinois, Urbana** **2251**
Application and design refinement of the massively parallel processing computer

Period	Obligations
09/12/77-08/19/80	FY80: \$62,677 TOTAL: \$177,677
Prin Invest	NASA Tech Officer CASE Category
Slotnick, D. L.	GSFC/Schaefer, D. H. 45-Elec Engr

NAS 5-25062 **University of Illinois, Urbana** **2252**
Study of antenna diffraction problems

Period	Obligations
06/23/78-02/01/81	FY80: TOTAL: \$129,229
Prin Invest	NASA Tech Officer CASE Category
Mitra, R.	GSFC/Keating, T., Jr. 45-Elec Engr
Lee, S.	

NAS 9-15328 **University of Illinois, Urbana** **2253**
Definition of Spacelab I experiment on effects of prolonged weightlessness on the humoral response in humans

Period	Obligations
07/15/77-07/01/81	FY80: TOTAL: \$47,738
Prin Invest	NASA Tech Officer CASE Category
Voss, E. W.	JSC/Thirolf, R. G. 59-Life Sci, NEC

NGI 14-005-140 **University of Illinois, Urbana** **2254**
Research on fluid dynamic and heat transfer problems of modern air breathing propulsive systems

Period	Obligations
05/23/69-05/31/79	FY80: TOTAL: \$257,661
Prin Invest	NASA Tech Officer CASE Category
Chow, W. L.	LERC/Bober, L. J. 41-Aero Engr

NGR 14-005-176 **University of Illinois, Urbana** **2255**
Investigation of the atmosphere of Jupiter by studying the ammonia feature at a wavelength of 1.26 cm

Period	Obligations
05/22/72-06/30/81	FY80: TOTAL: \$64,109
Prin Invest	NASA Tech Officer CASE Category
Dickel, J. R.	HD-SL/Brunk, W. E. 11-Astronomy
	HD-SL/Murphy, R. E.

NGR 14-005-181 **University of Illinois, Urbana** **2256**
Rocket studies of the lower ionosphere

Period	Obligations
08/01/71-10/31/80	FY80: \$450,000 TOTAL: \$4,034,817
Prin Invest	NASA Tech Officer CASE Category
Bowhill, S. A.	WFC/Gray, J. W. 19-Phys Sci, NEC
	WFC/Pless, R. H.

NASA'S UNIVERSITY PROGRAM
ILLINOIS (Continued)

NSG 1471	University of Illinois, Urbana	2257
Mechanisms and methodologies for the design and construction of communicating concurrent processes in real-time environments		
<i>Period</i>	<i>Obligations</i>	
11/15/77-11/14/81	FY80: \$67,000	TOTAL: \$241,422
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Campbell, R. H.	LARC/Foudriat, E. C.	21-Mathematics
Belford, G.	LARC/Will, R. H.	
NSG 1547	University of Illinois, Urbana	2258
An experimental investigation of 235UF6 fission produced plasmas		
<i>Period</i>	<i>Obligations</i>	
07/01/78-06/30/81	FY80: \$40,000	TOTAL: \$120,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miley, G. H.	LARC/Jalufka, N. W.	13-Physics
NSG 1609	University of Illinois, Urbana	2259
Lasing characteristics of gas mixtures involving UF6 application to nuclear pumping of lasers		
<i>Period</i>	<i>Obligations</i>	
04/15/79-04/14/81	FY80: \$46,832	TOTAL: \$76,832
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Verdeyen, J. T.	LARC/Hohl, F.	13-Physics
Eden, J. G.	LARC/Jalufka, N. W.	
NSG 2119	University of Illinois, Urbana	2260
Pilot interaction with automated airborne decision making systems		
<i>Period</i>	<i>Obligations</i>	
11/01/75-08/20/81	FY80: \$85,206	TOTAL: \$343,570
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rouse, W. B.	ARC/Palmer, E. A.	99-Multi-Discip
	ARC/Wempe, T. E.	
NSG 3293	University of Illinois, Urbana	2261
The effect of a zero g environment on flammability limits as determined using a standard flammability tube apparatus		
<i>Period</i>	<i>Obligations</i>	
08/21/79-08/20/80	FY80:	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Strehlow, R. A.	LERC/Cochran, T. H.	13-Physics
NSG 5049	University of Illinois, Urbana	2262
Effects of atmospheric refraction and turbulence on the accuracy of laser systems		
<i>Period</i>	<i>Obligations</i>	
02/01/75-10/31/80	FY80: \$18,000	TOTAL: \$189,080
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gardner, C. S.	GSFC/Abshire, J. B.	45-Elec Engr
NSG 5213	University of Illinois, Urbana	2263
Studies of the transport of nitric oxide using AE satellite data		
<i>Period</i>	<i>Obligations</i>	
10/01/77-12/31/80	FY80:	TOTAL: \$47,957
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sechrist, C. F., Jr.	GSFC/Spencer, N. W.	13-Physics
NSG 5278	University of Illinois, Urbana	2264
Search for spectra of interstellar molecules against hot stars		
<i>Period</i>	<i>Obligations</i>	
06/15/78-12/14/80	FY80:	TOTAL: \$13,513
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Snyder, L. E.	GSFC/Donn, B. D.	11-Astronomy
	GSFC/Stief, L. J.	
NSG 5294	University of Illinois, Urbana	2265
Copernicus satellite observations		
<i>Period</i>	<i>Obligations</i>	
08/01/78-07/31/80	FY80:	TOTAL: \$6,823
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Crutcher, R. M.	GSFC/Kupperian, J. E., Jr.	11-Astronomy
NSG 5319	University of Illinois, Urbana	2266
Theoretical studies of the solar corona, solar maximum mission		
<i>Period</i>	<i>Obligations</i>	
01/15/79-01/14/81	FY80:	TOTAL: \$41,568
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mouschovias, T. C.	GSFC/Donley, J. L.	31-Atmos Sci
NSG 7044	University of Illinois, Urbana	2267
Evolution of the cell and the translation process		
<i>Period</i>	<i>Obligations</i>	
06/01/74-05/31/81	FY80: \$79,500	TOTAL: \$376,860
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Woese, C. R.	HD-SB/Devincenzi, D. L.	12-Chemistry
NSG 7506	University of Illinois, Urbana	2268
Studies of upper-atmosphere motions by UHF		
<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/80	FY80: \$81,798	TOTAL: \$156,798
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bowhill, S. A.	HD-EB/Toth, R. A.	31-Atmos Sci
	HD-EB/Tilford, S. G.	
NSG 7598	University of Illinois, Urbana	2269
Observing Compact Objects Workshop		
<i>Period</i>	<i>Obligations</i>	
02/01/79-09/30/79	FY80:	TOTAL: \$7,143
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pines, D.	HD-SC/Opp, A. G.	11-Astronomy
Lamb, F.		
NSG 7653	University of Illinois, Urbana	2270
Fundamental studies in theoretical X-ray astronomy		
<i>Period</i>	<i>Obligations</i>	
09/01/79-12/31/80	FY80: \$140,000	TOTAL: \$140,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lamb, D. Q.	HD-SC/Kaluzienski, L. J.	11-Astronomy
	HD-SC/Opp, A. G.	

NASA'S UNIVERSITY PROGRAM

ILLINOIS (Continued)

NAG 1-42 **Western Illinois University** **2271**
 Research in numerical algorithms for the finite element machine
Period *Obligations*
 03/01/80-02/28/81 **FY80: \$18,049** **TOTAL: \$18,049**
Prin Invest *NASA Tech Officer* *CASE Category*
 McBride, W. E. LARC/Loendorf, D. D. 21-Mathematics
 LARC/Sawyer, P. L.

INDIANA

NAG 3-4 **Indiana Institute of Technology** **2272**
 Boundary layer studies of model and full-scale VTOL inlets in the diffusion limited flow region
Period *Obligations*
 10/25/79-11/24/80 **FY80: \$11,432** **TOTAL: \$11,432**
Prin Invest *NASA Tech Officer* *CASE Category*
 Boles, M. A. LERC/Stockman, N. O. 41-Aero Engr
 LERC/Hwang, D. P.

NAG 8-331 **Indiana University - Bloomington** **2273**
 Investigation of the X-ray and optical properties of s-type Markarian galaxies; simultaneous photometric and spectroscopic observations of X Persei
Period *Obligations*
 02/15/80-02/14/81 **FY80: \$13,950** **TOTAL: \$13,950**
Prin Invest *NASA Tech Officer* *CASE Category*
 Mufson, S. L. MSFC/Jones, J. B. 11-Astronomy
 Hutter, D. J.

NAG 8-362 **Indiana University - Bloomington** **2274**
 High Astronomical Observatory-A1 observations OA AM Hercules and related objects
Period *Obligations*
 08/20/80-08/19/81 **FY80: \$8,532** **TOTAL: \$8,532**
Prin Invest *NASA Tech Officer* *CASE Category*
 Dunsen, R. H. MSFC/Stone, J. F. 11-Astronomy
 Imamura, J. N.

NAG 8-365 **Indiana University - Bloomington** **2275**
 A search for Compton scattered X-rays in selected compact extragalactic objects
Period *Obligations*
 08/20/80-08/19/81 **FY80: \$8,105** **TOTAL: \$8,105**
Prin Invest *NASA Tech Officer* *CASE Category*
 Mufson, S. L. MSFC/Stone, J. F. 11-Astronomy

NAGW 60 **Indiana University - Bloomington** **2276**
 The role of gravity perception in the establishment of the dorsal ventral axis of the amphibian egg
Period *Obligations*
 06/01/80-05/31/81 **FY80: \$36,985** **TOTAL: \$36,985**
Prin Invest *NASA Tech Officer* *CASE Category*
 Malacinski, G. M. HD-SB/Halstead, T. W. 51-Biological Sci

NAGW 98 **Indiana University - Bloomington** **2277**
 Reconnaissance and recovery of the brighter asteroids
Period *Obligations*
 08/15/80-07/14/81 **FY80: \$25,000** **TOTAL: \$25,000**
Prin Invest *NASA Tech Officer* *CASE Category*
 Edmondson, F. K. HD-SL/Brunk, W. E. 11-Astronomy
 HD-SL/Murphy, R. E.

NAS 5-22987 **Indiana University - Bloomington** **2278**
 Digital techniques applied to surface photometry of low contrast astronomical objects
Period *Obligations*
 02/11/76-12/31/80 **FY80:** **TOTAL: \$59,996**
Prin Invest *NASA Tech Officer* *CASE Category*
 Burkhead, M. S. GSFC/Hobbs, R. W. 11-Astronomy

NAS 8-33087 **Indiana University - Bloomington** **2279**
 Correlated ground base observations in support of the HEAO-1 X-ray observatory
Period *Obligations*
 06/01/78-07/26/81 **FY80:** **TOTAL: \$45,129**
Prin Invest *NASA Tech Officer* *CASE Category*
 Mufson, S. L. MSFC/Dailey, C. C. 11-Astronomy
 Wisniewski, W. Z.
 Johnson, H. L.

NCA 2-335001 **Indiana University - Bloomington** **2280**
 The role of the sympathoadrenal system during exposure to heat and cold
Period *Obligations*
 03/01/80-02/28/82 **FY80: \$19,686** **TOTAL: \$19,686**
Prin Invest *NASA Tech Officer* *CASE Category*
 Elizondo, R. ARC/Greenleaf, J. E. 56-Medical Sciences

NSR 15-003-118 **Indiana University - Bloomington** **2281**
 Application of ultra-high sensitivity isotope ratio mass spectrometry to organic geochemistry and cosmochemistry
Period *Obligations*
 06/20/72-05/31/81 **FY80: \$87,000** **TOTAL: \$642,466**
Prin Invest *NASA Tech Officer* *CASE Category*
 Hayes, J. M. HD-SB/Devincenzi, D. L. 32-Geological Sci

NSG 7389 **Indiana University - Bloomington** **2282**
 Development of gas extraction systems needed to prepare geologic samples for sulfur and oxygen isotopic analysis
Period *Obligations*
 11/01/77-09/30/79 **FY80:** **TOTAL: \$9,182**
Prin Invest *NASA Tech Officer* *CASE Category*
 Ripley, E. M. HD-SB/Young, R. S. 32-Geological Sci

NASA'S UNIVERSITY PROGRAM
INDIANA (Continued)

NSG 7520 **Indiana University - Bloomington** **2283**
Origin and evolution of sulfur in an Archean volcano-sedimentary
sequence, north central Minnesota

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/80	FY80: \$17,544	TOTAL: \$29,688
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ripley, E. M.	HD-SB/Devincenzi, D. L.	32-Geological Sci

NSG 9072 **Indiana University - Bloomington** **2284**
Investigation of regolith evolution through a petrographic and
electronprobe analysis of soil samples

<i>Period</i>	<i>Obligations</i>	
07/14/78-07/14/81	FY80: \$9,650	TOTAL: \$28,550
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Basu, A.	JSC/McKay, D. S.	32-Geological Sci

NSG 9077 **Indiana University - Bloomington** **2285**
Characterization and evolution of Apollo 15 drill core soils, and
the origin of green glass vitrophyres

<i>Period</i>	<i>Obligations</i>	
07/15/79-02/15/81	FY80: \$25,000	TOTAL: \$46,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Basu, A.	JSC/Harris, J. W.	32-Geological Sci

NSG 3183 **Indiana Univ.-Purdue U. at Indianapolis** **2286**
Numerical solution of the compressible boundary layer equations
with viscous-inviscid interaction

<i>Period</i>	<i>Obligations</i>	
01/16/78-01/15/81	FY80: \$29,764	TOTAL: \$68,239
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bodonyi, R. J.	LERC/Sockol, P. M.	41-Aero Engr

NSG 3294 **Indiana Univ.-Purdue U. at Indianapolis** **2287**
Finite element analysis of transonic flow through a cascade of
airfoils using a self-adaptive mesh

<i>Period</i>	<i>Obligations</i>	
08/01/79-11/01/80	FY80	TOTAL: \$56,411
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ecer, A.	LERC/Chima, R.	41-Aero Engr

NAG 1-58 **Purdue University** **2288**
A study of method to predict and measure the transmission of
sound through the walls of light aircraft

<i>Period</i>	<i>Obligations</i>	
04/01/80-03/31/82	FY80: \$157,775	TOTAL: \$157,775
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Crocker, M. J.	LARC/Mixson, J. S.	41-Aero Engr

NAG 3-17 **Purdue University** **2289**
Sensor failure detection and control system accommodation

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/81	FY80: \$41,930	TOTAL: \$41,930
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Leininger, G. G.	LERC/Lehtinen, B.	41-Aero Engr
	LERC/Merrill, W. C.	

NAG 3-59 **Purdue University** **2290**
Cobalt in nickel base superalloys

<i>Period</i>	<i>Obligations</i>	
05/01/80-05/01/81	FY80: \$34,982	TOTAL: \$34,982
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Radavich, J. F.	LERC/Stephens, J. R.	47-Materials Engr

NAG 3-62 **Purdue University** **2291**
Water droplet dynamics in annular cascade

<i>Period</i>	<i>Obligations</i>	
04/15/80-04/14/81	FY80: \$51,487	TOTAL: \$51,487
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Murthy, S. N.	LERC/Steinke, R. J.	41-Aero Engr

NAG 4-1 **Purdue University** **2292**
The integrated manual and automatic control of complex flight
vehicles

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/80	FY80: \$54,502	TOTAL: \$54,502
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schmidt, D. K.	DFRC/Berry, D. T.	41-Aero Engr
	DFRC/Powers, B. G.	

NAG 5-3 **Purdue University** **2293**
Research on aspects of the massively parallel processor

<i>Period</i>	<i>Obligations</i>	
01/01/80-04/14/81	FY80: \$33,065	TOTAL: \$33,065
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Reeves, A. P.	GSFC/Strong, J. P.	45-Elec Engr
	GSFC/Schaefer, D. H.	

NAG 5-101 **Purdue University** **2294**
Study the effect of cloud inhomogeneity on the Earth radiation
budget

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$30,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Avies, R. D.	GSFC/Curran, R. J.	31-Atmos Sci
	GSFC/King, M. D.	

NAG 5-106 **Purdue University** **2295**
Parameterization of cloud effects on the absorption of solar
radiation

<i>Period</i>	<i>Obligations</i>	
09/15/80-09/14/81	FY80: \$38,146	TOTAL: \$38,146
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Davies, R.	GSFC/Shukla, T.	31-Atmos Sci

NAG 2-10514 **Purdue University** **2296**
Influences of mechanical vibration of plant growth and develop-
ment under hypogravity conditions

<i>Period</i>	<i>Obligations</i>	
01/17/80-04/30/81	FY80: \$17,379	TOTAL: \$17,379
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mitchell, C. A.	ARC/Ferandin, J.	51-Biological Sci
	ARC/Mancini, R.	

NASA'S UNIVERSITY PROGRAM **INDIANA (Continued)**

NAS 5-26196 **Purdue University** **2297**
Develop and evaluate a performance and cost modeling capability for the NASA data management system

Period	Obligations
06/11/80-02/10/81	FY80: \$89,988 TOTAL: \$89,988
<i>Prin Invest</i>	<i>NASA Tech Officer</i>
Williams, T. J.	GSFC/Grenchik, T. J. 21-Mathematics
Sadowski, R. P.	

NAS 5-26287 **Purdue University** **2298**
Magsat science investigation: Application of Magsat to lithospheric modeling in South America: Part I: Processing and interpretation of magnetic and gravity anomaly data

Period	Obligations
09/26/80-01/25/83	FY80: \$38,000 TOTAL: \$38,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>
Hinze, W. J.	GSFC/Oseroff, H. 32-Geological Sci

NAS 9-15325 **Purdue University** **2299**
Develop an operational forest resource information system

Period	Obligations
10/01/77-06/30/81	FY80: \$94,839 TOTAL: \$684,839
<i>Prin Invest</i>	<i>NASA Tech Officer</i>
Mroczynski, R	JSC/Joosten, R. E. 39-Env Sci, NEC

NAS 9-15466 **Purdue University** **2300**
Remote sensing of agriculture, Earth resources and man's environment

Period	Obligations
12/01/77-11/30/80	FY80: \$1,858,250 TOTAL: \$4,760,259
<i>Prin Invest</i>	<i>NASA Tech Officer</i>
Bauer, M. E.	JSC/Erickson, J. D. 39-Env Sci, NEC

NAS 9-15508 **Purdue University** **2301**
Digital processing of LANDSAT MSS and topographic data to improve capabilities for computerized mapping of forest cover types

Period	Obligations
12/16/77-10/31/80	FY80: TOTAL: \$200,549
<i>Prin Invest</i>	<i>NASA Tech Officer</i>
Hoffer, R. M.	JSC/Amsbury, D. L. 39-Env Sci, NEC

NAS 9-15889 **Purdue University** **2302**
Evaluation of Side Looking Airborne Radar (SLAR) and simulated thematic mapper multi-spectral (MSS) data for forest cover mapping using computer aided analysis techniques

Period	Obligations
05/21/79-11/30/80	FY80: \$124,100 TOTAL: \$187,875
<i>Prin Invest</i>	<i>NASA Tech Officer</i>
Hoffer, R. M.	JSC/Amsbury, D. L. 32-Geological Sci

NCA 2-605001 **Purdue University** **2303**
A study of the factors influencing the performance and morale of small research groups in isolation

Period	Obligations
06/01/80-05/31/82	FY80: \$30,000 TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>
Castore, C. H.	ARC/Patton, M. 62-Social Aspects
Heslin, R.	

NCC 5-21 **Purdue University** **2304**
Lithospheric models of the North American continent derived from seismic refraction and surface wave studies

Period	Obligations
07/01/79-12/31/80	FY80: TOTAL: \$41,855
<i>Prin Invest</i>	<i>NASA Tech Officer</i>
Braile, L. W.	GSFC/Allenby, R. J. 32-Geological Sci

NGL 15-005-140 **Purdue University** **2305**
Origin of chondrites from relationships between fourteen key trace elements

Period	Obligations
06/21/71-02/28/81	FY80: \$64,497 TOTAL: \$557,934
<i>Prin Invest</i>	<i>NASA Tech Officer</i>
Lipschutz, M. E.	HD-SL/French, B. M. 32-Geological Sci
	HD-SL/Quaide, W. L.

NGL 15-005-186 **Purdue University** **2306**
Application of remote sensing technology to solution of problems in management of resources

Period	Obligations
06/19/73-05/31/80	FY80: TOTAL: \$1,195,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>
Weismiller, R. A.	HD-ET/Vitale, J. A. 39-Env Sci, NEC

NGT 15-005-790 **Purdue University** **2307**
Pre-cooperative engineering education program

Period	Obligations
08/01/79-07/31/80	FY80: TOTAL: \$3,474
<i>Prin Invest</i>	<i>NASA Tech Officer</i>
Holec, D. E.	HD-LU/Pohly, J. G. 49-Engr, NEC
	LERC/Allen, R. P.

NSG 1635 **Purdue University** **2308**
Multiple level techniques for computational fluid dynamics

Period	Obligations
08/20/79-10/31/80	FY80: TOTAL: \$27,905
<i>Prin Invest</i>	<i>NASA Tech Officer</i>
McCarthy, D. R.	LARC/Swanson, R. C. 41-Aero Engr
	LARC/Klunker, B. E.

NSG 2192 **Purdue University** **2309**
Joint cooperative program in computer graphics

Period	Obligations
11/01/76-08/31/81	FY80: TOTAL: \$210,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>
Anderson, D. C.	ARC/Carmichael, R. L. 41-Aero Engr
White, P. R.	
Garrett, R. E.	

NASA'S UNIVERSITY PROGRAM **INDIANA (Continued)**

NSG 2401 **Purdue University** **2310**
Plant diversity to support humans in a controlled ecology life support system ground-based demonstrator
Period *Obligations*
09/01/79-05/31/81 **FY80: \$98,314** **TOTAL: \$136,314**
Pnn Invest *NASA Tech Officer* *CASE Category*
Hoff, J. E. ARC/Zeitman, B. B. 59-Life Sci, NEC
Howe, J. M.

NSG 2404 **Purdue University** **2311**
Higher plant species selection criteria for a closed ecological life support system: Photosynthetic and nutritional aspects
Period *Obligations*
09/01/79-10/30/80 **FY80: \$30,000** **TOTAL: \$70,000**
Pnn Invest *NASA Tech Officer* *CASE Category*
Mitchell, C. A. ARC/Zill, L. P. 59-Life Sci, NEC

NSG 3071 **Purdue University** **2312**
Gas film cooling of turbine vane surfaces
Period *Obligations*
09/01/75-10/15/80 **FY80:** **TOTAL: \$53,067**
Pnn Invest *NASA Tech Officer* *CASE Category*
LEcuyer, M. R. LERC/Stepka, F. S. 41-Aero Engr

NSG 3105 **Purdue University** **2313**
Expanding capabilities of NASA computer programs for fluid flow computations in turbomachinery
Period *Obligations*
06/01/76-09/30/80 **FY80:** **TOTAL: \$56,131**
Pnn Invest *NASA Tech Officer* *CASE Category*
Ragsdell, K. M. LERC/Katsanis, T. 41-Aero Engr
Thompson, H. D.

NSG 3135 **Purdue University** **2314**
Aerodynamics parameters affecting turbopropeller performance
Period *Obligations*
01/15/77-08/31/81 **FY80: \$94,511** **TOTAL: \$283,368**
Pnn Invest *NASA Tech Officer* *CASE Category*
Sullivan, J. P. LERC/Serafini, J. S. 41-Aero Engr

NSG 3185 **Purdue University** **2315**
Analytical and experimental study on impact damage of laminated composites
Period *Obligations*
10/31/77-02/28/81 **FY80: \$55,000** **TOTAL: \$150,186**
Pnn Invest *NASA Tech Officer* *CASE Category*
Sun, C. T. LERC/Chamis, C. C. 41-Aero Engr
LERC/Hirschbein, M. S.

NSG 3213 **Purdue University** **2316**
Fuel sprays in high-speed air flows
Period *Obligations*
09/01/78-09/30/81 **FY80: \$53,650** **TOTAL: \$204,665**
Pnn Invest *NASA Tech Officer* *CASE Category*
Lefebvre, A. H. LERC/Lyons, V. J. 41-Aero Engr
Skiftstad, J. G.

NSG 3237 **Purdue University** **2317**
Analysis and simulation of wind energy systems
Period *Obligations*
12/01/78-11/30/79 **FY80:** **TOTAL: \$49,863**
Pnn Invest *NASA Tech Officer* *CASE Category*
Krause, P. C. LERC/Gilbert, L. J. 45-Elec Engr

NSG 3258 **Purdue University** **2318**
Atomization of broad-specification aircraft fuels
Period *Obligations*
05/15/79-05/14/81 **FY80: \$57,053** **TOTAL: \$104,560**
Pnn Invest *NASA Tech Officer* *CASE Category*
Shiftstad, J. G. LERC/Haggard, J. 46-Mech Engr
Lefebvre, A. H.

NSG 3285 **Purdue University** **2319**
Three-dimensional aerodynamic of turbomachines
Period *Obligations*
07/01/79-06/30/81 **FY80: \$125,000** **TOTAL: \$242,569**
Pnn Invest *NASA Tech Officer* *CASE Category*
Fleeter, S. LERC/Boldman, D. R. 41-Aero Engr

NSG 3311 **Purdue University** **2320**
Calculation of boundary layer effects in supersonic mixed-compression inlets at angle of attack
Period *Obligations*
10/01/79-12/31/80 **FY80: \$57,783** **TOTAL: \$57,783**
Pnn Invest *NASA Tech Officer* *CASE Category*
Hoffman, J. D. LERC/Bishop, A. R. 41-Aero Engr

NSG 5414 **Purdue University** **2321**
A quantitative applications-oriented evaluation of thematic mapper design specifications
Period *Obligations*
10/01/79-12/31/80 **FY80: \$50,977** **TOTAL: \$50,977**
Pnn Invest *NASA Tech Officer* *CASE Category*
Swain, P. H. GSFC/Gordon, F. 99-Multi-Discip
Landgrebe, D. A.

NSG 7167 **Purdue University** **2322**
High-time resolution photometry of flare stars simultaneous with X-ray satellite observations
Period *Obligations*
10/01/75-03/31/80 **FY80:** **TOTAL: \$30,648**
Pnn Invest *NASA Tech Officer* *CASE Category*
Moffett, T. J. HD-SC/Rosendhal, J. D. 11-Astronomy
HD-SC/Roman, N. G.

NSG 7278 **Purdue University** **2323**
Characterization and elucidation of the mechanism of mechanical stress inhibition of plant growth
Period *Obligations*
10/01/76-09/30/81 **FY80: \$76,000** **TOTAL: \$164,476**
Pnn Invest *NASA Tech Officer* *CASE Category*
Mitchell, C. A. HD-SB/Halstead, T. W. 51-Biological Sci

NASA'S UNIVERSITY PROGRAM

INDIANA (Continued)

NAG 2-35		University of Notre Dame	2324
Zero modules and inverse system design			
<i>Period</i>		<i>Obligations</i>	
04/01/80-03/31/81	FY80: \$15,366	TOTAL: \$15,366	
<i>Principal Investigator</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>	
Sain, M. K.	ARC/Doolin, B. F.	49-Engr, NEC	

NAS 3-21018		University of Notre Dame	2325
Feasibility study of liquid pool burning in reduced gravity			
Period		Obligations	
07/28/77-05/10/79	FY80:	TOTAL:	\$45,648
Prin Invest	NASA Tech Officer	CASE Category	
Kanury, M.	LERC/Haggard, J.	11-Astronomy	

NSG 1419	University of Notre Dame	2326
Structure of separated flow regions occurring near the leading edge of air foils including transition		
Period	Obligations	
06/01/77-10/31/80	FY80: \$35,000	TOTAL: \$110,000
Prin Invest	NSA Tech Officer	CASE Category
Mueller, T. J	LARC/Somers, D. M.	41-Aero Engr

NSG: 3048		University of Notre Dame	2327
Alternatives for jet engine control			
Period	Obligations		
03/01/75-09/29/81	FY80: \$60,000	TOTAL: \$233,000	
Fin Invest	NASA Tech Officer	CASE Category	
Sain, M. K.	LERC/Seldner, K.	45-Elec Engr	

NSG 3195	University of Notre Dame	2328
Study of aerodynamic mechanism for noise generated by rotor-stator interaction		
Period	Obligations	
05/01/78-04/30/81	FY80:	TOTAL: \$67,918
Prin Invest	NASA Tech Officer	CASF Category
Atassi, H.	LERC/Scott, J. N.	13-Physics
	LERC/Dittmar, J. H.	

IOWA

NAS 8-33728	Drake University	2329
Assess use and development of a computer code rotating flows		
Period	Obligations	
03/17/80-03/16/81	FY80: \$20,336	TOTAL: \$20,336
Prin Invest	NAS4 Tech Officer	CASE Category
Kopicky, K. J.	MSFC/Fowls, W. W.	19-Phys Sci, NEC
	MSFC/Fichtl, G. H.	

NAG 2-30	Iowa State University	2330
Low-speed, high-lift aerodynamics		
<i>Period</i>	<i>Obligations</i>	
03/01/80-08/31/81	FY80: \$30,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
James, W. D.	ARC/Olson, L. E.	41-Aero Engr
	ARC/Corsiglia, V. R.	

NAG 5-104		Iowa State University	2331
Energetic study of the Goddard Laboratory for Atmospheric Sciences general circulation model			
Period	Obligations		
04/01/80-03/31/82	FY80: \$50,096	TOTAL: \$50,096	
Prin Invest	NASA Tech Officer	CASE Category	
Chen, T. C.	GSFC/Shukla, J.	31-Atmos Sci	

NAG 8-338		Iowa State University	23
Radio sources near COS-B X-ray sources			
Period		Obligation	
03/17/80-03/16/81	FY'80: \$4,286		TOTAL: \$4,286
Prin Invest	NASA Tech Officer		CASE Category
Lamb, R. C.	MSFC/Jones, T. B.		11-Astronomy
Market, T. H.			

NAG 8-360	Iowa State University	2333
Follow-up study of CG284-1 region. Follow-up study of CG295 - 0 region. Timing studies of X-ray sources possibly linked to X-ray sources		
<i>Period</i>	<i>Obligations</i>	
06/20/80-06/19/81	FY80: \$17,948	TOTAL: \$17,948
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lamb, R. C.	MSFC/Swearingen, J. C.	11-Astronomy

NAS 8-33013		Iowa State University	2334
Study of the X-ray emission from a strong gamma ray source			
Period	Obligations		
05/02/78-05/01/79	F Y80:	TOTAL: \$9,794	
Prin Invest	NASA Tech Officer	CASE Category	
Lamb, R. C.	MSFC/Dailey, C. C.	11-Astronomy	

NAS 8-33334		Iowa State University	2335
Supernova remnants near COS-B gamma ray sources			
Period		Obligations	
02/13/79-04/30/81	FY80:		TOTAL: \$13,671
Prin Invest	NASA Tech Officer		CASE Category
Lamb, R. C.	MSFC/Jones, J. B., Jr.		11-Astronomy

Period	Obligations
02/01/80-01/31/81	FY80: \$17,640
Grossman, A. S.	ARC/Pollack, J. B.
Podolak, M.	ARC/Reynolds, R. T.

NCA 2-340802		Iowa State University	2337
Simulation of Martian aeolian phenomena			
Period		Obligations	
09/01/78-08/31/81	FY80:	TOTAL	\$23,870
Prin Invest	SASA Tech Officer	CASE category	
Iversen, J. D.	ARC/Pollack, J. B.	49-Engr, NEC	

NASA'S UNIVERSITY PROGRAM

IOWA (Continued)

NCA 2-340901 Iowa State University **2338**
 Techniques for generating unsteady airfoil flows
Period Obligations
 10/01/78-09/30/80 FY80: \$15,406 TOTAL: \$28,051
Prin Invest NASA Tech Officer CASE Category
 Cook, W. J. ARC/Presley, L. L. 46-Mech Engr

NSG 1372 Iowa State University **2345**
 Periodic analysis of large space structures
Period Obligations
 01/01/77-12/31/80 FY80: \$35,000 TOTAL: \$119,945
Prin Invest NASA Tech Officer CASE Category
 McDaniel, T. J. LARC/Fralich, R. W. 49-Engr, NEC
 LARC/Pinson, L. D.

NCC 1-17 Iowa State University **2339**
 Analysis of flows with shocks
Period Obligations
 10/01/79-09/30/81 FY80: \$36,276 TOTAL: \$71,184
Prin Invest NASA Tech Officer CASE Category
 Anderson, D. A. LARC/Salas, M. D. 41-Aero Engr

NSG 1538 Iowa State University **2346**
 Symbolic solution of linear differential equations
Period Obligations
 06/01/78-12/31/80 FY80: TOTAL: \$14,804
Prin Invest NASA Tech Officer CASE Category
 Feinberg, R. B. LARC/Shoosmith, J. N. 21-Mathematics

NCC 2-19 Iowa State University **2340**
 Wing/body interference flow investigation
Period Obligations
 07/01/79-06/30/81 FY80: \$65,520 TOTAL: \$108,829
Prin Invest NASA Tech Officer CASE Category
 Vogel, J. M. ARC/Corsiglia, V. R. 41-Aero Engr
 ARC/Ross, J.

NSG 1582 Iowa State University **2347**
 Trailing vortex interaction and decay
Period Obligations
 12/01/78-12/31/81 FY80: TOTAL: \$31,658
Prin Invest NASA Tech Officer CASE Category
 Iversen, J. D. LARC/Morris, D. J. 41-Aero Engr

NCC 2-22 Iowa State University **2341**
 Wing/nacelle interference flow investigation
Period Obligations
 09/01/79-05/31/81 FY80: TOTAL: \$21,105
Prin Invest NASA Tech Officer CASE Category
 Nogel, J. ARC/Corsiglia, V. R. 41-Aero Engr

NSG 1605 Iowa State University **2348**
 Load deflection characteristics of inflated structures
Period Obligations
 04/01/79-05/31/81 FY80: \$29,145 TOTAL: \$54,151
Prin Invest NASA Tech Officer CASE Category
 Baumgarten, J. R. LARC/Tanner, J. A. 46-Mech Engr

NGR 16-002-038 Iowa State University **2342**
 Calculation of viscous compressible flow
Period Obligations
 10/07/71-07/31/81 FY80: \$29,998 TOTAL: \$195,161
Prin Invest NASA Tech Officer CASE Category
 Tannehill, J. C. ARC/Rakich, J. U. 41-Aero Engr
 ARC/Marvin, J. G.

NSG 2091 Iowa State University
 Study of viscous cross-flow effects on cylinders at high Re numbers
Period Obligations
 07/01/75-09/01/81 FY80: TOTAL: \$1,000
Prin Invest NASA Tech Officer CASE Category
 James, W. D. ARC/Malcolm, G. N. 41-Aero Engr

NGT 16-002-800 Iowa State University **2343**
 Graduate student researchers program
Period Obligations
 12/01/80-11/30/81 FY80: \$9,290 TOTAL: \$9,290
Prin Invest NASA Tech Officer CASE Category
 Okushi, T. H. LERC/Strazisar, A. J. 46-Mech Engr

NSG 5339 Iowa State University **2350**
 Research of extended-range forecasting problems blocking
Period Obligations
 04/01/79-03/31/81 FY80: \$48,343 TOTAL: \$93,588
Prin Invest NASA Tech Officer CASE Category
 Chen, T. GSFC/Halem, M. 31-Atmos Sci

NGT 16-002-801 Iowa State University **2344**
 Graduate student training program in computational fluid dynamics
Period Obligations
 07/01/80-12/31/80 FY80: \$75,000 TOTAL: \$75,000
Prin Invest NASA Tech Officer CASE Category
 Anderson, D. A. HD-RT/Graves, R. A. 41-Aero Engr

NAG 1-36 University of Iowa **2351**
 Coupling of the nitrogen-oxygen X and sulfur oxygen X cycles in the troposphere
Period Obligations
 02/01/80-01/31/81 FY80: \$55,780 TOTAL: \$55,780
Prin Invest NASA Tech Officer CASE Category
 Ragg, M. B. LARC/Fishman, J. 39-Env Sci, NEC

• *How many people are there?*

NAS 5-26125	University of Iowa	2365
Interplanetary monitoring platform-J data reduction and analysis		
<i>Period</i>	<i>Obligations</i>	
04/01/80-05/31/81	FY80 \$29,111	TOTAL \$29,111
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gurnett, D. A.	GSFC/Corrigan, J. P.	11-Astronomy

NASA'S UNIVERSITY PROGRAM
IOWA (Continued)

NAS 5-26257 **University of Iowa** **2366**
International Sun-Earth Explorer A and B data reduction and analysis

Period	Obligations	
07/01/80-11/30/81	FY80: \$157,000	TOTAL: \$157,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Frank, L. A.	GSFC/Wales, R. O.	31-Atmos Sci
	GSFC/Corrigan, J. P.	

NAS 8-32807 **University of Iowa** **2367**
Definition of instruments for an ejectable plasma diagnostics package for Spacelab 2 mission

Period	Obligations	
10/03/77-09/30/82	FY80: \$913,100	TOTAL: \$2,740,531
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shawhan, S. D.	MSFC/Guynes, B. V.	31-Atmos Sci
	MSFC/Isc, R.	

NAS 8-33770 **University of Iowa** **2368**
A recoverable plasma diagnostics package for Spacelab

Period	Obligations	
07/25/80-08/18/81	FY80: \$588,599	TOTAL: \$588,599
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shawhan, S.	MSFC/Guynes, B. V.	13-Physics
	MSFC/Isc, R.	

NGL 16-001-002 **University of Iowa** **2369**
Theoretical and experimental studies related to particles and fields associated with major bodies of solar system and with interplanetary space

Period	Obligations	
05/23/62-11/30/82	FY80: \$221,000	TOTAL: \$5,540,196
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
VanAllen, J. A.	HD-ST/Hedin, A. E.	13-Physics
	HD-ST/Schmerling, E. R.	

NGL 16-001-043 **University of Iowa** **2370**
Waves in plasmas

Period	Obligations	
03/28/67-11/30/81	FY80: \$125,000	TOTAL: \$1,139,986
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gurnett, D. A.	HD-ST/Hedin, A. E.	13-Physics
	HD-ST/Schmerling, E. R.	

NSG 1499 **University of Iowa** **2371**
Effects of misalignment on mechanical behavior of metals in creep

Period	Obligations	
03/01/78-06/30/81	FY80: \$23,876	TOTAL: \$53,508
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wu, H. C.	LARC/Rummler, D. R.	47-Materials Engr

NSG 2300 **University of Iowa** **2372**
Experimental study of trailing edge and near-wake flows

Period	Obligations	
02/01/78-01/31/81	FY80: \$51,885	TOTAL: \$155,275
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ramaprian, B. R.	ARC/Marvin, J. G.	41-Aero Engr
Patel, V. C.	ARC/Cleary, J. W.	

NSG 2327 **University of Iowa** **2373**
Laser manipulation of metallic vapors

Period	Obligations	
08/01/78-10/31/80	FY80:	TOTAL: \$117,768
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stwalley, W. C.	ARC/Stallcop, J. R.	13-Physics
Yang, S. C.		
Zemke, W. T.		

NSG 3117 **University of Iowa** **2374**
Boundary layer flow transition and separation in inlets of V/STOL and other high performance propulsion system

Period	Obligations	
01/01/77-01/31/80	FY80:	TOTAL: \$69,666
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chou, D. C.	LERC/Stockman, N. O.	41-Aero Engr

NSG 3305 **University of Iowa** **2375**
Development of finite differential method for internal computational fluid mechanics

Period	Obligations	
09/01/79-08/30/81	FY80: \$46,553	TOTAL: \$85,250
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chen, C. J.	LERC/Johnson, G. M.	41-Aero Engr

NSG 7412 **University of Iowa** **2376**
Analysis of cometary gas and dust

Period	Obligations	
01/01/78-05/31/80	FY80:	TOTAL: \$22,255
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Neff, J. S.	HD-SL/Brunk, W. E.	11-Astronomy

NSG 7471 **University of Iowa** **2377**
Experiments on spin-aligned atoms

Period	Obligations	
07/01/78-06/30/81	FY80: \$70,000	TOTAL: \$188,701
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stwalley, W. C.	HD-RT/Blue, J. W.	13-Physics

NSG 7632 **University of Iowa** **2378**
Investigation of charged particle acceleration mechanisms in space plasmas

Period	Obligations	
07/01/79-09/30/80	FY80:	TOTAL: \$56,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Joyce, G.	HD-ST/Hedin, A. E.	19-Phys Sci, NEC
	HD-ST/Schmerling, E. R.	

NASA'S UNIVERSITY PROGRAM

IOWA (Continued)

NSG 9060 University of Iowa 2379
Neurocirculatory control mechanisms in humans: Role of
cardiopulmonary baroreceptors
Period *Obligations*
08/01/77-07/31/80 FY80: TOTAL \$80,899
Prin Invest *NASA Tech Officer* *CASE Category*
Abboud, F. M. JSC/Hull, W. E. 56-Medical Sciences

SAG 2-57 University of Kansas 2385
Crop phenology and LANDSAT-based irrigated lands inventory
in the high plains
Period *Obligations*
09/01/80-03/31/81 FY80 \$30,050 TOTAL \$30,050
Prin Invest *NASA Tech Officer* *CASE Category*
Martinko, E. A. ARC/Jones, H. W. 55-Agriculture Sci
Poracsky, J. ARC/Lumb, D. R.

KANSAS

NAS 9-14899 Kansas State University 2380
Estimated winter wheat yield from crop growth predicted by
LANDSAT
Period *Obligations*
03/15/76-10/31/80 FY80 TOTAL \$219,734
Prin Invest *NASA Tech Officer* *CASE Category*
Kanemasu, I. I. JSC/Baldwin, R. R. 31-Atmos Sci

NSG 7580 Kansas State University 2381
Geology of Libyan desert glass site, SW Egypt
Period *Obligations*
03/01/79-12/31/80 FY80 TOTAL \$2,298
Prin Invest *NASA Tech Officer* *CASE Category*
Underwood, J. R. HD-SI Quade, W. I. 32-Geological Sci

NSG 7613 Kansas State University 2382
Northern plains of Mars
Period *Obligations*
06/01/79-05/31/81 FY80 \$17,781 TOTAL \$35,384
Prin Invest *NASA Tech Officer* *CASE Category*
Underwood, J. R. HD-SI Boyce, J. M. 32-Geological Sci
HD-SI Quade, W. I.

SAG 1-75 University of Kansas 2383
Development of unsteady suction analogy
Period *Obligations*
06/16/80-06/15/81 FY80 \$26,482 TOTAL \$26,482
Prin Invest *NASA Tech Officer* *CASE Category*
Tan, C. F. IARC Frink, N. I. 41-Aero Engr

SAG 1-94 University of Kansas 2384
Research program into nonconventional controllers for general
aviation airplanes
Period *Obligations*
08/15/80-02/15/81 FY80 \$20,718 TOTAL \$20,718
Prin Invest *NASA Tech Officer* *CASE Category*
Roskam, J. IARC/Bergerson, H. P. 41-Aero Engr
IARC/Shaugnessy, J. D.

SAG 3-11 University of Kansas 2386
Dynamic distortion analysis technology study
Period *Obligations*
11/15/79-11/13/81 FY80 \$62,031 TOTAL \$62,031
Prin Invest *NASA Tech Officer* *CASE Category*
Schweikhard, W. G. IERC/Neumann, H. I. 41-Aero Engr

SAG 3-32 University of Kansas 2387
Static and dynamic nonlinear analysis with substructure models
Period *Obligations*
03/01/80-02/28/81 FY80 \$25,363 TOTAL \$25,363
Prin Invest *NASA Tech Officer* *CASE Category*
Dodds, R. H. IERC/Hirschheim, M. S. 46-Mech Engr
IERC/Chamis, C. C.

SAG 3-71 University of Kansas 2388
An assessment of general aviation deicing systems on contemporary
airfoils
Period *Obligations*
05/01/80-04/30/81 FY80 \$44,934 TOTAL \$44,934
Prin Invest *NASA Tech Officer* *CASE Category*
Kohlman, D. I. IERC/Evanich, P. I. 41-Aero Engr
Schweikhard, W. G. IERC/Reinmann, J. I.

SAG 3-85 University of Kansas 2389
Study and design of approaches for simultaneous multi axis thrust
measurements of air breathing jet engines
Period *Obligations*
07/07/80-12/22/80 FY80 \$5,333 TOTAL \$5,333
Prin Invest *NASA Tech Officer* *CASE Category*
Schweikhard, W. G. IERC/Straight, D. M. 46-Mech Engr
IERC/Grey, R. I.

SAG 4-5 University of Kansas 2390
A program to evaluate a control system based on feedback of
aerodynamic pressure differentials
Period *Obligations*
08/25/80-08/24/81 FY80 \$40,000 TOTAL \$40,000
Prin Invest *NASA Tech Officer* *CASE Category*
Roskam, R. J. IERC/Black, J. M. 41-Aero Engr
IERC/Gera, J.

NASA'S UNIVERSITY PROGRAM
KANSAS (Continued)

NAG 5-30 **University of Kansas** **2391**
Measurement of soil using remote sensing active microwave techniques
Period *Obligations*
03/01/80-02/28/81 FY80: \$125,000 TOTAL: \$125,000
Prin Invest *NASA Tech Officer* *CASE Category*
Ulaby, F. T. GSFC/Rango, A. 39-Env Sci, NEC
Bradley, G. A. GSFC/Schmugge, T. J.

NAGW 71 **University of Kansas** **2392**
The magnetic field of Jupiter
Period *Obligations*
06/01/80-05/31/81 FY80: \$21,000 TOTAL: \$21,000
Prin Invest *NASA Tech Officer* *CASE Category*
Beard, D. B. HD-ST/Hedin, A. E. 19-Phys Sci, NEC
HD-ST/Schmerling, E. R.

NAS 1-15770 **University of Kansas** **2393**
Feasibility study for advanced technology integration for general aviation
Period *Obligations*
04/10/79-07/09/80 FY80: TOTAL: \$81,985
Prin Invest *NASA Tech Officer* *CASE Category*
Roskam, J. LARC/Holmes, B. J. 41-Aero Engr
Kohlman, D. L.

NAS 1-16255 **University of Kansas** **2394**
General aviation autopilot study
Period *Obligations*
06/26/80-12/10/80 FY80: \$10,036 TOTAL \$10,036
Prin Invest *NASA Tech Officer* *CASE Category*
Roskam, J. LARC/Downing, D. R. 41-Aero Engr

NAS 1-16363 **University of Kansas** **2395**
Design study of technology requirements for high performance single-propeller-driven business airplanes
Period *Obligations*
08/26/80-12/10/81 FY80: \$112,165 TOTAL \$112,165
Prin Invest *NASA Tech Officer* *CASE Category*
Kohlman, D. L. LARC/Holmes, B. J. 41-Aero Engr
Roskam, J.

NAS 5-23777 **University of Kansas** **2396**
Microwave remote sensing of snow
Period *Obligations*
11/23/76-08/09/81 FY80: TOTAL: \$150,085
Prin Invest *NASA Tech Officer* *CASE Category*
Ulaby, F. T. GSFC/Rango, A. 45-Elec Engr
GSFC/Shive, J.

NAS 5-25807 **University of Kansas** **2397**
Evaluation of the measurement of the microwave back-scatter coefficient with active microwave systems
Period *Obligations*
07/31/79-09/30/80 FY80: \$31,348 TOTAL: \$46,348
Prin Invest *NASA Tech Officer* *CASE Category*
Ulaby, F. T. GSFC/Schmugge, T. J. 31-Atmos Sci

NAS 9-15421 **University of Kansas** **2398**
Radar measurements in agricultural applications
Period *Obligations*
10/01/77-01/31/81 FY80: \$89,640 TOTAL: \$327,620
Prin Invest *NASA Tech Officer* *CASE Category*
Ulaby, F. T. JSC/Demel, K. J. 31-Atmos Sci
JSC/Baldwin, R. R.

NAS13-131 **University of Kansas** **2399**
Conduct short courses in remote sensing
Period *Obligations*
10/26/79-10/25/80 FY80: \$25,011 TOTAL: \$25,011
Prin Invest *NASA Tech Officer* *CASE Category*
Martino, E. A. NSTL/Atwell, B. H. 32-Geological Sci
Williams, T. H.

NCC 1-6 **University of Kansas** **2400**
A research program to reduce interior noise in general aviation airplanes
Period *Obligations*
05/01/79-04/30/81 FY80: \$83,280 TOTAL: \$157,935
Prin Invest *NASA Tech Officer* *CASE Category*
Roskam, J. LARC/Stephens, D. G. 41-Aero Engr
Unz, H.

NCC 1-18 **University of Kansas** **2401**
Investigation of optimum wing configurations with edge separation
Period *Obligations*
06/15/79-06/14/81 FY80: \$17,933 TOTAL: \$47,917
Prin Invest *NASA Tech Officer* *CASE Category*
Lan, C. E. LARC/Campbell, J. F. 41-Aero Engr

NCC 2-92 **University of Kansas** **2402**
Investigation of variable camber devices for helicopter rotor systems
Period *Obligations*
06/01/80-05/30/82 FY80: \$59,000 TOTAL \$59,000
Prin Invest *NASA Tech Officer* *CASE Category*
Zerwekh, R. ARC/Stroub, R. H. 41-Aero Engr

NCC 4-2 **University of Kansas** **2403**
Research in the area of aircraft digital control systems
Period *Obligations*
06/01/80-11/30/80 FY80: \$11,422 TOTAL: \$11,422
Prin Invest *NASA Tech Officer* *CASE Category*
Clark, R. DFRC/Szalai, K. J. 41-Aero Engr

NGI 17-004-024 **University of Kansas** **2404**
Research on the applications of satellite remote sensing
Period *Obligations*
04/06/72-03/31/83 FY80: \$125,000 TOTAL: \$1,075,000
Prin Invest *NASA Tech Officer* *CASE Category*
Barr, B. G. HD-ET/Vitale, J. A. 39-Env Sci, NEC

NASA'S UNIVERSITY PROGRAM **KANSAS (Continued)**

NSG 1046 **University of Kansas** **2405**
Effects of aeroelasticity on control effectiveness
Period *Obligations*
06/10/74-03/31/80 **FY80:** **TOTAL: \$161,350**
Prin Invest *NASA Tech Officer* *CASE Category*
Roskam, J. LARC/Lamar, J. E. 41-Aero Engr
Lan, C. E. LARC/Polhamus, E. C.
Mehrotra, S.

NSG 1281 **University of Kansas** **2406**
Statistical distribution of mechanical properties of graphite-epoxies
Period *Obligations*
07/15/76-05/31/80 **FY80:** **TOTAL: \$74,939**
Prin Invest *NASA Tech Officer* *CASE Category*
Reese, C. D. LARC/Howell, W. E. 47-Materials Engr
LARC/Dexter, H. B.

NSG 1397 **University of Kansas** **2407**
Remote sensing of oceans
Period *Obligations*
02/15/77-05/15/81 **FY80: \$59,709** **TOTAL: \$202,148**
Prin Invest *NASA Tech Officer* *CASE Category*
Moore, R. K. LARC/Schroeder, L. C. 33-Oceanography
Fung, A. K.

NSG 1554 **University of Kansas** **2408**
Radar discrimination of oil spills on the sea
Period *Obligations*
07/24/78-03/23/80 **FY80:** **TOTAL \$38,713**
Prin Invest *NASA Tech Officer* *CASE Category*
Moore, R. K. LARC/Croswell, W. F. 45-Elec Engr
Yu, Y. S. LARC/Fedors, J. C.

NSG 1574 **University of Kansas** **2409**
Correlation of theoretical prediction with tunnel data and flight data on the Advanced Technology Light Twin Engine (ATLIT) airplane
Period *Obligations*
11/01/78-01/31/81 **FY80:** **TOTAL: \$57,505**
Prin Invest *NASA Tech Officer* *CASE Category*
Roskam, J. LARC/Hassell, J. L., Jr. 41-Aero Engr
LARC/Holmes, B. J.

NSG 1629 **University of Kansas** **2410**
An investigation of vortex induced aerodynamic characteristics of supersonic cruise configurations
Period *Obligations*
06/16/79-06/15/81 **FY80: \$24,754** **TOTAL: \$45,724**
Prin Invest *NASA Tech Officer* *CASE Category*
Lan, C. E. LARC/Lamar, J. E. 41-Aero Engr
LARC/Polhamus, E. C.

NSG 1633 **University of Kansas** **2411**
Analysis of performance and handling qualities considerations for wake modification devices on agricultural aircraft
Period *Obligations*
09/01/79-08/31/81 **FY80: \$28,976** **TOTAL: \$55,430**
Prin Invest *NASA Tech Officer* *CASE Category*
Lenzen, K. LARC/Holmes, B. J. 41-Aero Engr
Roskam, J.

NSG 3290 **University of Kansas** **2412**
Self consistent numerical simulation of plasma insulator interactions in space
Period *Obligations*
08/16/79-08/14/81 **FY80: \$34,079** **TOTAL: \$34,079**
Prin Invest *NASA Tech Officer* *CASE Category*
Armstrong, T. P. LERC/Purvis, C. K. 13-Physics
Enoch, J. LERC/Stevens, N. J.
Wiseman, G. G.

NSG 4008 **University of Kansas** **2413**
Analysis of structural components for ultra high speed aircraft
Period *Obligations*
05/01/76-04/30/81 **FY80:** **TOTAL: \$40,416**
Prin Invest *NASA Tech Officer* *CASE Category*
Lenzen, K. DFRC/Jenkins, J. M. 41-Aero Engr

NSG 4017 **University of Kansas** **2414**
Analyze and test the flight control system for the DAST vehicle
Period *Obligations*
06/01/78-12/31/80 **FY80:** **TOTAL: \$53,076**
Prin Invest *NASA Tech Officer* *CASE Category*
Kotsabasis, A. DFRC/Edwards, J. W. 41-Aero Engr
Roskam, J. DFRC/Deets, D. A.

NSG 4019 **University of Kansas** **2415**
Study of new flight test techniques
Period *Obligations*
01/22/79-02/14/81 **FY80: \$83,113** **TOTAL: \$141,522**
Prin Invest *NASA Tech Officer* *CASE Category*
Roskam, J. DFRC/Kordes, E. E. 41-Aero Engr
Rummer, D. I. DFRC/Szalai, K. J.
Lenz, R. L.

NSG 4023 **University of Kansas** **2416**
Drag reduction/delivery truck
Period *Obligations*
07/01/79-12/31/80 **FY80:** **TOTAL: \$11,934**
Prin Invest *NASA Tech Officer* *CASE Category*
Muirhead, V. U. DFRC/Saltzman, E. I. 49-Engr, NEC

NSG 4026 **University of Kansas** **2417**
A system study for the application of distributed processors to flight testing techniques
Period *Obligations*
07/01/79-06/30/81 **FY80: \$50,000** **TOTAL: \$95,812**
Prin Invest *NASA Tech Officer* *CASE Category*
Kelley, G. L. DFRC/Abbott, L. W. 45-Elec Engr
DFRC/Szalai, K. J.

NASA'S UNIVERSITY PROGRAM

KANSAS (Continued)

NSG 5335 **University of Kansas** **2418**
 Active microwave investigation of snow hydrology
Period Obligations
 02/01/79-01/14/81 FY80: \$169,997 TOTAL: \$219,997
Prin Invest NASA Tech Officer CASE Category
 Ulaby, F. T. GSFC/Chang, A. T. 32-Geological Sci

NSC 1-21 **Wichita State University** **2419**
 Weight estimation techniques for hypersonic flight vehicles
Period Obligations
 09/01/79-09/30/80 FY80: TOTAL: \$20,716
Prin Invest NASA Tech Officer CASE Category
 Cook, F. L. LARC/Watts, J. D. 41-Aero Engr
 LARC/Jackson, L. R.

NSC 1-31 **Wichita State University** **2420**
 Research in engine nozzle design for a hypersonic flight vehicle
Period Obligations
 01/01/80-12/31/80 FY80: \$28,702 TOTAL: \$28,702
Prin Invest NASA Tech Officer CASE Category
 Zumwalt, G. W. LARC/Weidner, J. P. 41-Aero Engr
 LARC/Watts, J. D.

NSG 1165 **Wichita State University** **2421**
 Computer and wind tunnel development of flaps and control surfaces for advanced technology general aviation airfoils
Period Obligations
 06/01/75-01/31/81 FY80: \$37,076 TOTAL: \$283,261
Prin Invest NASA Tech Officer CASE Category
 Wentz, W. H., Jr. LARC/McGhee, R. J. 41-Aero Engr
 LARC/Barnwell, R. W.

NSG 1575 **Wichita State University** **2422**
 Supersonic burning in separated flow regions
Period Obligations
 11/01/78-12/31/80 FY80: \$29,135 TOTAL: \$56,042
Prin Invest NASA Tech Officer CASE Category
 Zumwalt, G. W. LARC/Rogers, R. C. 41-Aero Engr
 LARC/Jones, R. A.

NSG 3186 **Wichita State University** **2423**
 Numerical modeling of magnetohydrodynamic channel flow
Period Obligations
 03/01/81-01/15/81 FY80: \$21,515 TOTAL: \$41,316
Prin Invest NASA Tech Officer CASE Category
 Conway, M. S. LERC/Smith, J. M. 21-Mathematics
 LERC/Juhasz, A. J.

NSC 3277 **Wichita State University** **2424**
 Feasibility studies of spoiler and aileron control systems for large wind turbine
Period Obligations
 06/01/79-02/28/81 FY80: \$90,323 TOTAL: \$115,964
Prin Invest NASA Tech Officer CASE Category
 Wentz, W. H., Jr. LERC/Miller, D. R. 41-Aero Engr
 Snyder, M. H.

KENTUCKY

NSG 801 **Kentucky State University** **2425**
 Zoological effects of variations in atmospheric oxygen levels
Period Obligations
 02/27/74-04/28/81 FY80: \$45,708 TOTAL: \$265,029
Prin Invest NASA Tech Officer CASE Category
 Kloek, G. KSC/Hoffler, G. W. 59-Life Sci, NEC

NAS13-111 **Murray State University - Ky** **2426**
 Conduct short courses in remote sensing
Period Obligations
 04/02/79-04/02/81 FY80: TOTAL: \$24,231
Prin Invest NASA Tech Officer CASE Category
 Weber, N. NSTL/Atwell, B. H. 31-Atmos Sci

NAS 9-15452 **University of Kentucky** **2427**
 Development of limb volume measuring system
Period Obligations
 11/01/77-10/31/80 FY80: \$67,933 TOTAL: \$113,054
Prin Invest NASA Tech Officer CASE Category
 Bhagat, P. K. JSC/Booher, C. R. 56-Medical Sciences

NAS 9-16034 **University of Kentucky** **2428**
 Lower limb volume measurements in space using an ultrasonic technique
Period Obligations
 01/17/80-05/31/81 FY80: \$31,940 TOTAL: \$31,940
Prin Invest NASA Tech Officer CASE Category
 Bhagat, P. K. JSC/White, T. 59-Life Sci, NEC

NAS 9-16045 **University of Kentucky** **2429**
 Prevention of space flight deconditioning by application of whole body oscillating accelerator
Period Obligations
 01/17/80-10/31/80 FY80: \$37,125 TOTAL: \$37,125
Prin Invest NASA Tech Officer CASE Category
 Bhattacharga, A. JSC/Kirby, R. 59-Life Sci, NEC

NASW 3039 **University of Kentucky** **2430**
 Operation of a state technical application program
Period Obligations
 02/01/77-08/31/80 FY80: TOTAL: \$491,558
Prin Invest NASA Tech Officer CASE Category
 Unavailable HD-ET/Dolby, W. 99-Multi-Discip

NASW 3367 **University of Kentucky** **2431**
 Operation of a Technology Applications Program (TAP)
Period Obligations
 07/01/80-06/30/81 FY80: \$184,934 TOTAL: \$184,934
Prin Invest NASA Tech Officer CASE Category
 Hackbarth, M. HD-ET/Harrison, J. O. 22-Computer Science

NASA'S UNIVERSITY PROGRAM
KENTUCKY (Continued)

NSG 1424 **University of Kentucky** **2432**
 A model for methane and carbon monoxide incorporating a
 time-varying wind field and tropopause height
Period *Obligations*
 07/01/77-03/31/81 FY80: \$26,480 TOTAL: \$86,068
Prin Invest *NASA Tech Officer* *CASE Category*
 Peters, I. K. IARC/Reichle, H. G., Jr. 31-Atmos Sci
 IARC/Wallo, H. A.

NSG 1501 **University of Kentucky** **2433**
 An algorithm to generate input data from meteorological and
 space shuttle observations to validate a CH₄-CO model
Period *Obligations*
 02/01/78-10/31/80 FY80: TOTAL: \$69,197
Prin Invest *NASA Tech Officer* *CASE Category*
 Peters, I. K. IARC/Reichle, H. G., Jr. 31-Atmos Sci
 Yamamis, J.

NSG 2318 **University of Kentucky** **2434**
 Dynamically imposed oscillating forces for preventing ar-
 diovascular deconditioning
Period *Obligations*
 05/01/78-04/30/81 FY80: \$45,605 TOTAL: \$166,651
Prin Invest *NASA Tech Officer* *CASE Category*
 Knapp, C. I. ARC/Sandler, H. 56-Medical Sciences
 Bhattacharya, A.

NSG 3114 **University of Kentucky** **2435**
 Study effects of buoyancy on flame spreading across beds of
 solid fuel
Period *Obligations*
 07/01/76-09/29/81 FY80: \$43,000 TOTAL: \$155,234
Prin Invest *NASA Tech Officer* *CASE Category*
 Altenkirch, R. A. IERC/Cochran, T. H. 46-Mech Engr
 Eichhorn, R.

NAGW 70 **University of Louisville** **2436**
 Space biology research project
Period *Obligations*
 06/01/80-05/31/81 FY80: \$197,714 TOTAL: \$197,714
Prin Invest *NASA Tech Officer* *CASE Category*
 Musacchia, X. J. HD-SB/Halstead, T. W. 51-Biological Sci

NAS 2-10510 **University of Louisville** **2437**
 Life sciences flight experiment Renal and musculo-skeletal
 responses to weightlessness and readaptation to normal gravitation
 forces in rats
Period *Obligations*
 01/17/80-12/31/80 FY80: \$6,411 TOTAL: \$6,411
Prin Invest *NASA Tech Officer* *CASE Category*
 Musacchia, X. J. ARC/Rasmussen, D. 51-Biological Sci
 Deavers, D. R. ARC/Neville, I.

NAS 8-31233 **University of Louisville** **2438**
 Turbopump technology improvements via transient rotordynamics
 analysis
Period *Obligations*
 11/14/74-07/31/80 FY80: \$4,500 TOTAL: \$162,724
Prin Invest *NASA Tech Officer* *CASE Category*
 Childs, D. W. MSF-C/Winder, S. W. 42-Astro Engr
 MSF-C/Goetz, O. K.

NCA 2-400901 **University of Louisville** **2439**
 Susceptibility to infection Interrelationship of interferon and
 genetic factors
Period *Obligations*
 11/01/78-10/31/80 FY80: \$15,000 TOTAL: \$30,000
Prin Invest *NASA Tech Officer* *CASE Category*
 Sonnenfeld, G. ARC/Mandel, A. D. 56-Medical Sciences

NSG 2325 **University of Louisville** **2440**
 Renal function, water and electrolyte balance and intestinal
 transport in hypokinetic animals
Period *Obligations*
 06/01/78-10/31/80 FY80: \$35,000 TOTAL: \$89,768
Prin Invest *NASA Tech Officer* *CASE Category*
 Musacchia, X. J. ARC/Holton, E. M. 51-Biological Sci
 Deavers, D. R.

NSG 3200 **University of Louisville** **2441**
 Dynamic seal testing and analysis for turbopump rotor dynamic
 stability and synchronous response technology improvements
Period *Obligations*
 06/01/78-02/01/81 FY80: TOTAL: \$134,992
Prin Invest *NASA Tech Officer* *CASE Category*
 Dressman, J. B. IERC/Hendricks, R. C. 46-Mech Engr
 IERC/Ludwig, I. P.

NSG 7441 **University of Louisville** **2442**
 Baseline studies on the embryonic development of the mouse
 cranial sensory systems
Period *Obligations*
 02/01/78-04/30/79 FY80: TOTAL: \$20,000
Prin Invest *NASA Tech Officer* *CASE Category*
 Fuller, P. M. HD-SB/Halstead, T. W. 51-Biological Sci
 HD-SB/Geib, D. S.

NSG 5238 **Western Kentucky University** **2443**
 Ultraviolet observations of high excitation planetary nebulae
Period *Obligations*
 02/15/78-05/15/81 FY80: \$16,000 TOTAL: \$31,813
Prin Invest *NASA Tech Officer* *CASE Category*
 Hackney, R. I. GSFC/Boggess, A. 11-Astronomy
 Hackney, K. R.

NASA'S UNIVERSITY PROGRAM LOUISIANA

LOUISIANA

NAG 8-2 Grambling State University 2444 Turbulence in transient solar phenomena

Period	Obligations
01 04 80-07 20 81	FY80 \$33,839 TOTAL \$33,839
Principal Investigator	NASA Tech Officer
Cross, M. A.	MSFC Hanssen, F. A.
Johnson, J. A.	MSFC Kent, M. I.
	13-Physics

NAG 5-13 Louisiana State University - Baton Rouge 2445 The rotation and internal fluid dynamics of the sun

Period	Obligations
02 01 80-01 31 81	FY80 \$16,000 TOTAL \$16,000
Principal Investigator	NASA Tech Officer
Endal, A. S.	GSEC Sofia, S.
	11-Astronomy

NAG 5-71 Louisiana State University - Baton Rouge 2446 Ultraviolet spectroscopy of selected astronomical sources

Period	Obligations
07 01 80-06 30 81	FY80 \$11,500 TOTAL \$11,500
Principal Investigator	NASA Tech Officer
Drilling, J. S.	GSEC Boggess, A.
	11-Astronomy

NAGW 48 Louisiana State University - Baton Rouge 2447 Electron positive ion interaction

Period	Obligations
04 01 80-03 31 81	FY80 \$47,200 TOTAL \$47,200
Principal Investigator	NASA Tech Officer
Henry, J. W.	HD-SI Murphy, R. E.
	HD-SI Brunk, W. I.
	31-Atmos Sci

NAS13-142 Louisiana State University - Baton Rouge 2448 Conduct short courses in remote sensing

Period	Obligations
02 01 80-02 01 81	FY80 \$25,000 TOTAL \$25,000
Principal Investigator	NASA Tech Officer
Whitehurst, C. A.	NSII Atwell, B. H.
	32-Geological Sci

NAS13-148 Louisiana State University - Baton Rouge 2449 Technology transfer to sub-state levels of government

Period	Obligations
05 01 80-01 31 81	FY80 \$50,000 TOTAL \$50,000
Principal Investigator	NASA Tech Officer
Whitehurst, C. A.	NSII Ivey, J. H.
	32-Geological Sci

NGI 19-001-105 Louisiana State University - Baton Rouge 2450 Interpretation of remote sensing data in the Bayou La Fourche region of south Louisiana

Period	Obligations
04 06 72-08 15 79	FY80 TOTAL \$425,000
Principal Investigator	NASA Tech Officer
Whitehurst, C. A.	HD-ET Vitale, J. A.
	39-Env Sci, NLC

NGI 19-001-800 Louisiana State University - Baton Rouge 2451 Graduate student researchers program

Period	Obligations
09 01 80-08 31 81	FY80 \$11,430 TOTAL \$11,430
Principal Investigator	NASA Tech Officer
Rouse, L. J.	JPL/Cahane, M.
	33-Oceanography

NSG 7542 Louisiana State University - Shreveport 2452 Paleohydrology of Mars

Period	Obligations
04 01 79-06 30 81	FY80: \$50,787 TOTAL: \$80,895
Principal Investigator	NASA Tech Officer
Nummedal, D.	HD-SI Boyce, J. M.
	HD-SI Quade, W. I.
	32-Geological Sci

NSG 7357 Northeast Louisiana University 2453 Mercury geologic mapping Kuiper quadrangle

Period	Obligations
06 01 77-12 31 79	FY80 TOTAL \$16,417
Principal Investigator	NASA Tech Officer
DeHon, R. A.	HD-SI Dwornik, S. I.
	HD-SI Boyce, J. M.
	32-Geological Sci

NSG 7420 Northeast Louisiana University 2454 Thickness of mare basalts Western Mare Basin

Period	Obligations
03 01 78-06 30 79	FY80 TOTAL \$11,716
Principal Investigator	NASA Tech Officer
DeHon, R. A.	HD-SI Quade, W. I.
	HD-SI French, B. M.
	32-Geological Sci

NSG 7534 Northeast Louisiana University 2455 Stratigraphy and crater morphology

Period	Obligations
02 01 79-01 31 81	FY80 \$17,361 TOTAL \$33,422
Principal Investigator	NASA Tech Officer
DeHon, R. A.	HD-SI Boyce, J. M.
	HD-SI Quade, W. I.
	32-Geological Sci

NSG 7628 Northeast Louisiana University 2456 Detection of buried surfaces on Mars

Period	Obligations
08 01 79-01 31 82	FY80 TOTAL \$7,514
Principal Investigator	NASA Tech Officer
DeHon, R. A.	HD-SI Boyce, J. M.
	HD-SI Quade, W. I.
	32-Geological Sci

NAG 8-4 Southern University - Baton Rouge 2457 Crystal structure and catalytic properties of noble metal-rare earth alloys

Period	Obligations
02 19 80-02 18 81	FY80 \$31,200 TOTAL \$31,200
Principal Investigator	NASA Tech Officer
Collins, W. F.	MSFC McClure, J. C.
Mohanty, R. C.	MSFC Kent, M. I.
	13-Physics

NASA'S UNIVERSITY PROGRAM
LOUISIANA (Continued)

NAS 1-15335 Southern University - Baton Rouge 2458
 Atomic oxygen stimulated outgassing experiment for the long duration exposure facility

Period	Obligations	
04/07/78-04/01/82	FY80:	TOTAL: \$50,426
Prin Invest	NASA Tech Officer	CASE Category
Scott, R. L.	LARC/ONeal, R. L.	31-Atmos Sci
	LARC/Carter, D. J.	

NSG 3209 Tulane University 2464
 Evaluation of ion textured Al₂O₃ surfaces for permanent prosthetic attachment

Period	Obligations	
08/01/78-07/31/80	FY80:	TOTAL: \$14,995
Prin Invest	NASA Tech Officer	CASE Category
Weinstein, A. M.	IFRC/Weigand, A. J.	
Klawitter, J. J.		56-Medical Sciences

NASW 3344 Southern University - Baton Rouge 2459
 Return on automatic data processing investment

Period	Obligations	
03/14/78-03/14/82	FY80: \$55,371	TOTAL: \$55,371
Prin Invest	NASA Tech Officer	CASE Category
Roquemore, L.	HD-NS/Smith, J. A.	
		22-Computer Science
	HD-LU/Pohly, J. G.	

NSG 1460 University of New Orleans 2465
 Enhancement of appearance potential spectroscopy data by noise removal and deconvolution

Period	Obligations	
10/01/77-10/31/80	FY80:	TOTAL: \$15,847
Prin Invest	NASA Tech Officer	CASE Category
Ioup, G. E.	LARC/Wood, G. M.	47-Materials Engr

NCC 2-33 Southern University - Baton Rouge 2460
 Investigation of the mechanical principles of the ballistic motion of the left ventricle

Period	Obligations	
11/01/79-05/31/81	FY80 \$25,000	TOTAL \$25,000
Prin Invest	NASA Tech Officer	CASE Category
Ray, G.	ARC Sandler, H.	56-Medical Sciences

NSG 1648 University of New Orleans 2466
 Study on one and two dimensional filtering and deconvolution algorithms for a streaming array computer

Period	Obligations	
09/01/79-09/30/81	FY80 \$19,429	TOTAL \$37,453
Prin Invest	NASA Tech Officer	CASE Category
Ioup, G. E.	LARC/Lambiotte, J. J.	21-Mathematics
	LARC/Shoosmith, J. N.	

NGR 19-005-006 Southern University - Baton Rouge 2461
 Research in the many-particle theory of nuclear systems with application to neutron star matter

Period	Obligations	
10/17/72-01/31/79	FY80	TOTAL \$107,314
Prin Invest	NASA Tech Officer	CASE Category
Yang, C. H.	JPL/Estabrook, F. B.	11-Astronomy
	JPL/Zmudzinas, J. S.	

NAS 8-33765 University of Southwestern Louisiana 2467
 Photovoltaic gas cell thermal study

Period	Obligations	
01/28/80-10/28/80	FY80: \$4,979	TOTAL \$4,979
Prin Invest	NASA Tech Officer	CASE Category
Bankston, I. D.	MSFC/Humphries, W. R.	46-Mech Engr
	MSFC/Littles, J. W.	

NCA 2-800001 Tulane University 2462
 Evolutionary relationships among bacteria Thermophiles and mesophiles

Period	Obligations	
03/01/80-02/28/82	FY80: \$5,454	TOTAL: \$5,454
Prin Invest	NASA Tech Officer	CASE Category
Johnson, F. J.	ARC MacElroy, R. D.	51-Biological Sci

NAG 1-16 Xavier University - Louisiana 2468
 Mathematical enhancement of data from scientific measuring instruments

Period	Obligations	
01/01/80-12/31/81	FY80: \$54,678	TOTAL \$54,678
Prin Invest	NASA Tech Officer	CASE Category
Ioup, J.	LARC/Wood, G. M.	21-Mathematics

NSG 2139 Tulane University 2463
 Localization and ultrastructural histochemical characterization of the central emetic apparatus related to motion sickness and emetic drugs in the squirrel monkey and dog

Period	Obligations	
03/01/76-02/28/81	FY80 \$45,000	TOTAL \$195,445
Prin Invest	NASA Tech Officer	CASE Category
Brizze, K. R.	ARC/Mehler, W. R.	59-Life Sci, NEC

NSG 8050 Xavier University - Louisiana 2469
 Solar radiation measurement project

Period	Obligations	
06/02/77-12/31/80	FY80: \$26,193	TOTAL \$97,650
Prin Invest	NASA Tech Officer	CASE Category
Ioup, J.	MSFC/Espy, P. N.	39-Env Sci, NEC
	MSFC/Kent, M. I.	

NASA'S UNIVERSITY PROGRAM MARYLAND

MARYLAND

NCA 5-96 **Bowie State College** **2470**
Recruit into Engineering High Ability Minority and Female Students (REHAMFS)
Period *Obligations*
03/14/80-11/15/80 **FY80: \$26,000** **TOTAL: \$26,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Bonds, J. W. GSFC/Mundy, J. R. 45-Elec Engr
GSFC/Chapman, J. W.

NCA 5-97 **Bowie State College** **2471**
Summer institute in science and technology for junior high school girls
Period *Obligations*
04/30/80-06/30/81 **FY80: \$794** **TOTAL: \$794**
Prin Invest *NASA Tech Officer* *CASE Category*
Butler, O. B. GSFC/Mundy, J. R. 19-Phys Sci, NEC

NGR 21-027-001 **Bowie State College** **2472**
Research in cosmic ray physics
Period *Obligations*
09/01/69-09/30/80 **FY80:** **TOTAL: \$140,426**
Prin Invest *NASA Tech Officer* *CASE Category*
Walker, R. P. GSFC/Kniffen, D. A. 11-Astronomy

NGR 21-027-004 **Bowie State College** **2473**
Research in numerical integration
Period *Obligations*
05/25/71-07/31/81 **FY80: \$33,881** **TOTAL: \$145,158**
Prin Invest *NASA Tech Officer* *CASE Category*
Srivastava, S. GSFC/Maury, J. I. 21-Mathematics
GSFC/Lefferts, F.

NGR 21-027-010 **Bowie State College** **2474**
Holographic gratings for spectrographic applications study of aberrations
Period *Obligations*
05/14/73-07/31/81 **FY80: \$18,439** **TOTAL: \$114,137**
Prin Invest *NASA Tech Officer* *CASE Category*
Bhatia, M. S. GSFC/Caruso, A. J. 13-Physics
GSFC/Osantowski, J. F.

NGF 21-027-012 **Bowie State College** **2475**
Training of undergraduate students in sciences and engineering
Period *Obligations*
06/01/74-03/31/81 **FY80: \$44,919** **TOTAL: \$227,953**
Prin Invest *NASA Tech Officer* *CASE Category*
Kirksey, C. H. HD-LU/Pohly, J. G. 99-Multi-Discip
GSFC/Chapman, J. W.

NSG 5009 **Bowie State College** **2476**
Characterization of the physico-chemical properties of polymeric materials for aerospace flights
Period *Obligations*
07/01/74-12/31/80 **FY80: \$26,227** **TOTAL: \$136,285**
Prin Invest *NASA Tech Officer* *CASE Category*
Rock, M. GSFC/Gross, F. C. 12-Chemistry
GSFC/Colony, J. A.

NSG 5416 **Bowie State College** **2477**
Investigation of automatic picture transmission relative to space sciences
Period *Obligations*
10/01/79-09/30/80 **FY80:** **TOTAL: \$15,427**
Prin Invest *NASA Tech Officer* *CASE Category*
Kirksey, C. H. GSFC/Bailey, E. 99-Multi-Discip
GSFC/Crome, R.

NSG 5051 **Coppin State College** **2478**
Research on the failure mechanism and other factors leading to reduce cycle life in aerospace nickel-cadmium cells
Period *Obligations*
05/01/75-05/31/81 **FY80: \$48,748** **TOTAL: \$229,001**
Prin Invest *NASA Tech Officer* *CASE Category*
McDermott, P. P. GSFC/Halpert, G. 12-Chemistry
GSFC/Gaddy, E. M.

NAG 5-32 **Johns Hopkins University** **2479**
Interpretation and delineation of the Earth's gravity field
Period *Obligations*
04/01/80-03/31/81 **FY80: \$40,000** **TOTAL: \$40,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Marsh, B. D. GSFC/Holweck, F. C. 32-Geological Sci
GSFC/Marsh, J. G.

NAG 5-35 **Johns Hopkins University** **2480**
Petrologic and geophysical study of the source of long wavelength crustal magnetic anomalies
Period *Obligations*
05/01/80-05/31/81 **FY80: \$19,462** **TOTAL: \$19,462**
Prin Invest *NASA Tech Officer* *CASE Category*
Marsh, B. D. GSFC/Thomas, H. H. 32-Geological Sci

NAGW 16 **Johns Hopkins University** **2481**
An ultraviolet imaging detector for shuttle astronomy
Period *Obligations*
12/01/79-05/30/81 **FY80: \$45,000** **TOTAL: \$45,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Moos, H. W. HD-SC/Roman, N. G. 13-Physics
HD-SC/Weiler, F. J.

NAS 5-11415 **Johns Hopkins University** **2482**
Atmosphere Explorer photoelectron and energetic particle experiment
Period *Obligations*
08/15/74-09/30/81 **FY80: \$124,500** **TOTAL: \$1,576,377**
Prin Invest *NASA Tech Officer* *CASE Category*
Doering, J. P. GSFC/Bullock, G. D. 31-Atmos Sci

NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)

NAS 5-23732 **Johns Hopkins University** **2483**
 Development of a command system for a fully implantable human tissue stimulator
Period *Obligations*
 10/26/76-11/15/81 FY80: TOTAL: \$525,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Long, D. GSFC/Friedman, D. S. 56-Medical Sciences
 Fishell, R. E.

NAS 8-33106 **Johns Hopkins University** **2490**
 Coronal magnetic structure and the latitude and longitude distribution of energetic charged particles
Period *Obligations*
 10/18/78-10/17/79 FY80: TOTAL: \$34,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Roelof, E. C. MSFC/DeLoach, A. C. 13-Physics
 MSFC/Snoddy, W. C.

NAS 5-25358 **Johns Hopkins University** **2484**
 Grating facility use
Period *Obligations*
 10/01/78-12/31/81 FY80: \$51,300 TOTAL: \$61,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Fastie, W. G. GSFC/Fowler, W. S. 13-Physics

NAS 9-16030 **Johns Hopkins University** **2491**
 Effect of weightlessness on diurnal pattern of resin and aldosterone concentration in plasma
Period *Obligations*
 01/17/80-05/31/81 FY80: \$36,178 TOTAL: \$36,178
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Walker, W. G. JSC/White, T. 59-Life Sci, NEC

NAS 5-26057 **Johns Hopkins University** **2485**
 Generate an investigation development plan and establish the preliminary interfaces between the orbiter and instrument for the far ultraviolet telescope/spectrometer
Period *Obligations*
 02/06/80-03/10/81 FY80: \$166,700 TOTAL: \$166,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Davidson, A. GSFC/Fiband, A. M. 11-Astronomy

NAS 9-16036 **Johns Hopkins University** **2492**
 Life science flight experiment: Factor affecting respiratory tract particle deposition and clearance in the space environment
Period *Obligations*
 01/17/80-10/31/80 FY80: \$23,237 TOTAL: \$23,237
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Swift, D. L. JSC/French, B. 59-Life Sci, NEC

NAS 5-26085 **Johns Hopkins University** **2486**
 Clinical ophthalmic ultrasound improvements
Period *Obligations*
 03/04/80-11/04/80 FY80: \$26,000 TOTAL: \$26,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Piro, P. A. GSFC/Friedman, D. S. 56-Medical Sciences
 Garrison, J. B.

NCC 5-1 **Johns Hopkins University** **2493**
 Interpretation and delineation of the Earth's gravity field
Period *Obligations*
 04/01/79-03/31/80 FY80 TOTAL: \$42,635
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Marsh, B. D. GSFC/Marsh, J. 32-Geological Sci

NAS 6-2888 **Johns Hopkins University** **2487**
 Study of ocean fine structures
Period *Obligations*
 03/22/78-03/21/79 FY80: TOTAL: \$50,043
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Phillips, O. M. WFC/Huang, N. E. 33-Oceanography
 WFC/Long, S. R.

NCC 5-13 **Johns Hopkins University** **2494**
 The source of long wavelength crustal magnetic anomalies
Period *Obligations*
 05/01/79-05/31/80 FY80 TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Marsh, B. D. GSFC/Taylor, P. T. 32-Geological Sci

NAS 6-2993 **Johns Hopkins University** **2488**
 Study of the ocean fine structure
Period *Obligations*
 05/01/79-04/30/80 FY80: \$20,638 TOTAL: \$52,331
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Phillips, O. M. WFC/Huang, N. E. 33-Oceanography
 WFC/Long, S. R.

NCC 5-18 **Johns Hopkins University** **2495**
 Research of thermal regime of the upper mantle
Period *Obligations*
 06/14/79-08/30/80 FY80 TOTAL: \$10,452
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Marsh, B. D. GSFC/Langel, R. A. 32-Geological Sci

NAS 8-32903 **Johns Hopkins University** **2489**
 Scientific investigations in support of the space telescope project
Period *Obligations*
 02/01/78-01/31/84 FY80 TOTAL: \$151,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Fastie, W. G. MSFC/O'Dell, C. R. 11-Astronomy

NGR 21-001-001 **Johns Hopkins University** **2496**
 Rocket and laboratory experiments and analysis on ultraviolet spectra of upper atmosphere
Period *Obligations*
 08/01/61-03/14/81 FY80: \$360,263 TOTAL: \$5,331,126
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Fastie, W. G. GSFC/Guidotti, J. 11-Astronomy

NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)

NGR 21-001-111 **Johns Hopkins University** **2497**
Small group performance and effects of contingency management
in a programmed environment

Period	Obligations	
03/31/72-10/31/80	FY80: \$75,000	TOTAL: \$950,794
Prin Invest	NASA Tech Officer	CASE Category
Brady, J. V.	ARC/Patton, R. M.	62-Social Aspects
Emurian, H. H.		

NGT 21-001-800 **Johns Hopkins University** **2498**
Graduate student researchers program

Period	Obligations	
09/01/80-08/31/81	FY80: \$9,195	TOTAL: \$9,195
Prin Invest	NASA Tech Officer	CASE Category
Davidson, A. F.	GSFC/Boldt, E. A.	41-Aero Engr

NGT 21-001-980 **Johns Hopkins University** **2499**
Disturbances on the ocean surface: Graduate student researchers
program

Period	Obligations	
09/01/80-08/31/81	FY80: \$10,405	TOTAL: \$10,405
Prin Invest	NASA Tech Officer	CASE Category
Phillips, O.	WFC/Huang, N. E.	13-Physics

NSG 1442 **Johns Hopkins University** **2500**
Intermittent/transient faults in computer systems based systems

Period	Obligations	
09/15/77-03/31/81	FY80: \$65,000	TOTAL: \$158,201
Prin Invest	NASA Tech Officer	CASE Category
Masson, G. M.	LARC/Pitts, F. L.	45-Elec Engr

NSG 2303 **Johns Hopkins University** **2501**
Experiments on sheared or strained turbulence

Period	Obligations	
02/01/78-11/30/80	FY80: \$47,161	TOTAL: \$105,043
Prin Invest	NASA Tech Officer	CASE Category
Corrsin, S.	ARC/Rubesin, M. W.	41-Aero Engr

NSG 5255 **Johns Hopkins University** **2502**
Ultraviolet studies of the outer planets

Period	Obligations	
03/15/78-03/14/80	FY80:	TOTAL: \$12,000
Prin Invest	NASA Tech Officer	CASE Category
Moos, H. W.	GSFC/Bogges, A.	11-Astronomy
	GSFC/West, D. K.	

NSG 5269 **Johns Hopkins University** **2503**
Research of thermal regime of the upper mantle

Period	Obligations	
04/15/78-07/31/79	FY80:	TOTAL: \$15,738
Prin Invest	NASA Tech Officer	CASE Category
Marsh, B. D.	GSFC/Langel, R. A.	32-Geological Sci
Didwall, E. M.	GSFC/Mead, G. D.	

NSG 5310 **Johns Hopkins University** **2504**
Study of interstellar matter and chromospheres

Period	Obligations	
12/15/78-12/14/79	FY80:	TOTAL: \$12,000
Prin Invest	NASA Tech Officer	CASE Category
Moos, H. W.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 5393 **Johns Hopkins University** **2505**
Studies of the ultraviolet spectra of astronomical sources

Period	Obligations	
07/01/79-01/31/81	FY80: \$50,400	TOTAL: \$66,400
Prin Invest	NASA Tech Officer	CASE Category
Moos, H. W.	GSFC/Bogges, A.	11-Astronomy
Feldman, P. D.		

NSG 7055 **Johns Hopkins University** **2506**
Satellite data analysis

Period	Obligations	
01/01/74-01/31/81	FY80: \$110,000	TOTAL: \$489,000
Prin Invest	NASA Tech Officer	CASE Category
Krimigis, S. M.	HD-ST/Wiskerchen, M. J.	13-Physics
	HD-ST/Schmerling, E. R.	

NSG 7482 **Johns Hopkins University** **2507**
A study of the feasibility of ultraviolet spectrometry for cometary
missions

Period	Obligations	
11/01/77-04/30/79	FY80:	TOTAL: \$35,000
Prin Invest	NASA Tech Officer	CASE Category
Feldman, P. D.	HD-SL/Murphy, R. E.	11-Astronomy
	HD-SL/Brunk, W. E.	

NSG 7449 **Johns Hopkins University** **2508**
Analysis of X-ray astronomy data

Period	Obligations	
05/15/78-05/14/81	FY80:	TOTAL: \$60,420
Prin Invest	NASA Tech Officer	CASE Category
Davidson, A. F.	HD-SC/Weiler, E. J.	11-Astronomy

NAG 5-12 **Morgan State University** **2509**
Relating thematic mapper bands to agronomics variables for
soybeans and corn

Period	Obligations	
04/01/80-03/31/81	FY80: \$32,418	TOTAL: \$32,418
Prin Invest	NASA Tech Officer	CASE Category
Fan, C. J.	GSFC/Tucker, C. J.	39-Env Sci, NEC

NAG 5-14 **Morgan State University** **2510**
Evaluation of the quality of rainfall intensity estimates

Period	Obligations	
03/01/80-02/28/81	FY80: \$21,044	TOTAL: \$21,044
Prin Invest	NASA Tech Officer	CASE Category
Knox, N.	GSFC/Hwang, P. H.	31-Atmos Sci

NASA'S UNIVERSITY PROGRAM MARYLAND (Continued)

NAS 5-23558 **Morgan State University** **2511**
The investigation, identification, analysis and interpretation of
new possibilities in transfer technology
Period *Obligations*
06/01/76-03/31/82 **FY80: \$28,976 TOTAL: \$103,340**
Prin Invest *NASA Tech Officer* *CASE Category*
Taylor, J. H. GSFC/Friedman, D. S. 49-Engr, NEC

NGT 21-025-006 **Morgan State University** **2512**
Summer faculty fellowship program
Period *Obligations*
04/16/71-12/31/79 **FY80: TOTAL: \$337,199**
Prin Invest *NASA Tech Officer* *CASE Category*
Proctor, N. K. HD-LU/Pohly, J. G. 19-Phys Sci, NEC
GSFC/Mundy, J. R.

NGT 21-025-080 **Morgan State University** **2513**
10th Summer Research Participation Program
Period *Obligations*
04/01/80-03/31/81 **FY80: \$75,000 TOTAL: \$75,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Proctor, N. K. GSFC/Mundy, J. R. 99-Multi-Discip

NSG 5074 **Morgan State University** **2514**
Research calibration of photographic and spectrographic films
Period *Obligations*
10/01/75-03/31/81 **FY80: \$24,261 TOTAL: \$95,046**
Prin Invest *NASA Tech Officer* *CASE Category*
Hammond, E. C., Jr. GSFC/Baker, G. R. 11-Astronomy
GSFC/Stober, A. K.

NSG 5401 **Morgan State University** **2515**
Research of high temperature solar converter
Period *Obligations*
08/01/79-07/31/81 **FY80: \$45,000 TOTAL: \$90,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Oliver, F. W. GSFC/Duncan, C. H. 31-Atmos Sci
Ascher, G.

NGR 21-002-010 **University of Maryland - Baltimore** **2516**
Theoretical and experimental research on gravitational radiation
Period *Obligations*
06/12/63-09/30/79 **FY80: TOTAL: \$1,005,625**
Prin Invest *NASA Tech Officer* *CASE Category*
Misner, C. W. HD-SC/Roman, N. G. 11-Astronomy
HD-SC/Rosendhal, J. D.

NAG 1-24 **University of Maryland - College Park** **2517**
An experimental investigation of the effects on the near wall
turbulent boundary layer structure by drag reducing flat plate
surface geometry changes
Period *Obligations*
01/15/80-01/14/81 **FY80: \$25,000 TOTAL: \$25,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Wallace, J. M. LARC/Walsh, M. J. 41 -to Engr
LARC/Hefner, J. N.

NAG 1-27 **University of Maryland - College Park** **2518**
Design of variable structure control systems
Period *Obligations*
01/15/80-01/14/81 **FY80: \$39,862 TOTAL: \$39,862**
Prin Invest *NASA Tech Officer* *CASE Category*
Wang, S. H. LARC/Schy, A. A. 45-Elec Engr

NAG 1-51 **University of Maryland - College Park** **2519**
Research in problem solving systems
Period *Obligations*
06/01/80-08/31/81 **FY80: \$45,839 TOTAL: \$45,839**
Prin Invest *NASA Tech Officer* *CASE Category*
Minker, J. LARC/Barker, L. K. 22-Computer Science
LARC/Hankins, W. W.

NAG 2-28 **University of Maryland - College Park** **2520**
Volcanic impact on stratospheric aerosol chemistry
Period *Obligations*
03/01/80-02/28/81 **FY80: \$25,000 TOTAL: \$25,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Zoller, W. H. ARC/Page, W. A. 31-Atmos Sci

NAG 5-9 **University of Maryland - College Park** **2521**
Research relative to the development of hydrologic models for
remote sensing technology
Period *Obligations*
02/01/80-01/31/81 **FY80: \$89,960 TOTAL: \$89,960**
Prin Invest *NASA Tech Officer* *CASE Category*
Ragan, R. M. GSFC/Rango, A. 39-Env Sci, NEC
GSFC/Salomonson, V. V.

NAG 5-26 **University of Maryland - College Park** **2522**
Research of sea-air-land interaction in climate modeling
Period *Obligations*
03/01/80-02/28/82 **FY80: \$79,103 TOTAL: \$79,103**
Prin Invest *NASA Tech Officer* *CASE Category*
Baer, F. GSFC/Halem, M. 31-Atmos Sci

NAG 5-29 **University of Maryland - College Park** **2523**
Research of penumbral surges and their physical relationships to
solar flares
Period *Obligations*
04/01/80-03/31/81 **FY80: \$7,000 TOTAL: \$7,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Schmahl, E. J. GSFC/Donley, J. L. 31-Atmos Sci
McKenna-lawlor, S.

NAG 5-54 **University of Maryland - College Park** **2524**
Studies of Seyfert and X-ray galaxies
Period *Obligations*
05/01/80-04/30/81 **FY80: \$10,000 TOTAL: \$10,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Wilson, A. S. GSFC/Boggess, A. 11-Astronomy
Ward, M. J.

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NAG 5-74 University of Maryland - College Park 2525
Ultraviolet cometary spectrophotometry

Period	Obligations	
07/01/80-06/30/81	FY80: \$5,100	TOTAL: \$5,100
Prin Invest	NASA Tech Officer	CASE Category
Ahearn, M. F.	GSFC/Boggess, A.	11-Astronomy

NAG 5-379 University of Maryland - College Park 2532
Ionospheric density measurement by X-ray source occultation

Period	Obligations	
09/15/80-03/14/81	FY80: \$2,000	TOTAL: \$2,000
Prin Invest	NASA Tech Officer	CASE Category
Matthews, D. L.	MSFC/Stone, J. F.	11-Astronomy

NAG 5-90 University of Maryland - College Park 2526
Research relative to laser and star tracking on GSFC telescopes

Period	Obligations	
07/15/80-07/14/81	FY80: \$22,930	TOTAL: \$22,930
Prin Invest	NASA Tech Officer	CASE Category
Currie, D. G.	GSFC/Friskey, J. L.	31-Atmos Sci

NAGW 33 University of Maryland - College Park 2533
A program to develop remote sensing excellence

Period	Obligations	
03/01/80-02/28/83	FY80: \$200,000	TOTAL: \$200,000
Prin Invest	NASA Tech Officer	CASE Category
Ragan, R. M.	HD-ET/Vitale, J. A.	39-Env Sci, NEC

NAG 5-99 University of Maryland - College Park 2527
Improving communications between humans and computer-directed automatic systems

Period	Obligations	
09/01/80-08/31/81	FY80: \$54,227	TOTAL: \$54,227
Prin Invest	NASA Tech Officer	CASE Category
Rieger, C. J.	GSFC/Desjardins, R. L.	22-Computer Science
	GSFC/Maury, J. L.	

NAGW 81 University of Maryland - College Park 2534
A study of discontinuities and ion processes in solar terrestrial plasmas

Period	Obligations	
06/01/80-05/31/81	FY80: \$285,000	TOTAL: \$285,000
Prin Invest	NASA Tech Officer	CASE Category
Papadopoulos, K.	HD-ST/Birmingham, T. J.	13-Physics
Wu, C. S.	HD-ST/Newton, G. P.	

NAG 8-307 University of Maryland - College Park 2528
Optical spectroscopy studies of identification of high galactic latitude High Energy Astronomical Observatory-B X-ray sources

Period	Obligations	
02/18/80-02/17/81	FY80: \$9,500	TOTAL: \$9,500
Prin Invest	NASA Tech Officer	CASE Category
Wilson, A. S.	MSFC/Jones, J. B.	11-Astronomy

NAS 5-11063 University of Maryland - College Park 2535
Experiment to analyze ions and electrons for IMP-H and J

Period	Obligations	
06/11/68-10/31/80	FY80: \$2,162,997	TOTAL: \$2,162,997
Prin Invest	NASA Tech Officer	CASE Category
Gloeckler, G.	GSFC/Corrigan, J. P.	13-Physics

NAG 8-329 University of Maryland - College Park 2529
X-ray study of elliptical and SO galaxies with compact nuclear radio

Period	Obligations	
03/01/80-02/28/81	FY80: \$11,500	TOTAL: \$11,500
Prin Invest	NASA Tech Officer	CASE Category
Wilson, A. S.	MSFC/Jones, J. B.	11-Astronomy

NAS 5-20062 University of Maryland - College Park 2536
Low energy charged particles experiment for International Sun-Earth Explorer mother and heliocentric spacecraft

Period	Obligations	
05/02/74-11/30/81	FY80: \$129,000	TOTAL: \$1,096,861
Prin Invest	NASA Tech Officer	CASE Category
Gloeckler, G.	GSFC/Corrigan, J. P.	13-Physics

NAG 8-349 University of Maryland - College Park 2530
Studies of crab nebula-like supernova remnants

Period	Obligations	
06/20/80-06/19/81	FY80: \$8,000	TOTAL: \$8,000
Prin Invest	NASA Tech Officer	CASE Category
Wilson, A. S.	MSFC/Swearingen, J. C.	11-Astronomy
Kundu, M. R.		

NAS 5-23237 University of Maryland - College Park 2537
International Sun-Earth Explorer 3 data spectrometer, and radiometer for Mariner/Jupiter 1977 launch

Period	Obligations	
05/09/73-10/31/81	FY80: \$14,000	TOTAL: \$90,900
Prin Invest	NASA Tech Officer	CASE Category
Ponnamperuma, C.	GSFC/Conrath, B. J.	13-Physics
	GSFC/Hanel, R. A.	

NAG 8-369 University of Maryland - College Park 2531
X-ray investigations of selected field in the old galactic supernova remnant S147

Period	Obligations	
08/15/80-08/14/81	FY80: \$7,500	TOTAL: \$7,500
Prin Invest	NASA Tech Officer	CASE Category
Erickson, W. C.	MSFC/Stone, J. F.	11-Astronomy
Angerhofer, P. E.		

NAS 5-23457 University of Maryland - College Park 2538
Study of application of a field neutron generator

Period	Obligations	
04/06/76-05/15/81	FY80: \$15,468	TOTAL: \$50,120
Prin Invest	NASA Tech Officer	CASE Category
Sommer, S. E.	GSFC/Trombka, J. I.	39-Env Sci, NEC

NASA'S UNIVERSITY PROGRAM MARYLAND (Continued)

NAS 5-25437 University of Maryland - College Park 2539
Feasibility study for line structure solar energy converter
Period Obligations
02/14/79-10/14/80 FY80: TOTAL: \$12,441
Prin Invest NASA Tech Officer CASE Category
Taylor, L. S. GSFC/Peake, H. J. 45-Elec Engr

NAS 5-25472 University of Maryland - College Park 2540
International Sun-Earth Explorer 3 data interpretation services
Period Obligations
01/29/79-01/28/81 FY80: \$28,500 TOTAL: \$58,500
Prin Invest NASA Tech Officer CASE Category
Coplan, M. A. GSFC/Ogilvie, K. W. 11-Astronomy

NAS 5-25486 University of Maryland - College Park 2541
Support to the space telescope wide field planetary camera development team
Period Obligations
02/01/79-10/31/80 FY80: \$44,000 TOTAL: \$74,047
Prin Invest NASA Tech Officer CASE Category
Currie, D. G. GSFC/Sours, W. T. 31-Atmos Sci

NAS 5-25735 University of Maryland - College Park 2542
Interplanetary monitoring of platform-H and J spacecraft ion and electron experiment
Period Obligations
11/01/79-12/31/80 FY80: \$85,000 TOTAL: \$85,000
Prin Invest NASA Tech Officer CASE Category
Gloeckler, G. GSFC/Corrigan, J. P. 11-Astronomy

NAS 5-25764 University of Maryland - College Park 2543
Perform research in natural human to machine interfaces for NASA mission operations data systems
Period Obligations
06/29/79-08/31/81 FY80: \$71,377 TOTAL: \$104,502
Prin Invest NASA Tech Officer CASE Category
Rieger, C. S. GSFC/Truszkowski, W. 99-Multi-Discip
Somet, H.

NAS 5-26098 University of Maryland - College Park 2544
definition phase for Transition Radiation and Ionization Calorimeter (TRIC) telescope
Period Obligations
03/04/80-09/30/81 FY80: \$55,170 TOTAL: \$55,170
Prin Invest NASA Tech Officer CASE Category
Yodh, G. B. GSFC/Ormes, J. F. 11-Astronomy

NAS 5-26294 University of Maryland - College Park 2545
Funds to support Colloquium on Chemical Evolution of Comets and the Origin of Life on October 29-31, 1980 in College Park, Maryland
Period Obligations
07/01/80-05/31/81 FY80: \$18,940 TOTAL: \$18,940
Prin Invest NASA Tech Officer CASE Category
Ponnamperuma, C. GSFC/Baurer, S. 11-Astronomy

NAS 8-33329 University of Maryland - College Park 2546
HEAO-B observations of distant QSO associated clusters of galaxies
Period Obligations
02/14/79-02/13/80 FY80: TOTAL: \$8,000
Prin Invest NASA Tech Officer CASE Category
Scott, J. S. MSFC/Jones, J. B., Jr. 11-Astronomy
Becker, R. H.

NAS 8-33346 University of Maryland - College Park 2547
Radio and optical studies of X-ray clusters of galaxies
Period Obligations
02/14/79-02/13/80 FY80: TOTAL: \$24,356
Prin Invest NASA Tech Officer CASE Category
Erickson, W. C. MSFC/Jones, J. B., Jr. 11-Astronomy
Holman, G. D.
Matthews, T. A.

NAS 8-33358 University of Maryland - College Park 2548
An investigation of the relation between seyfert and other active nuclei galaxies
Period Obligations
05/22/79-05/21/80 FY80: TOTAL: \$15,000
Prin Invest NASA Tech Officer CASE Category
Wilson, A. S. MSFC/Jones, J. B. Jr. 11-Astronomy

NAS 8-33557 University of Maryland - College Park 2549
Construction of a prototype superconducting gravity gradiometer
Period Obligations
08/03/79-07/30/80 FY80: \$33,510 TOTAL: \$53,510
Prin Invest NASA Tech Officer CASE Category
Geisler, J. E. MSFC/Urban, E. W. 13-Physics
Richard, J. P. MSFC/Shriver, E. L.

NAS 8-33798 University of Maryland - College Park 2550
Design studies for the shuttle time and frequency transfer experiment
Period Obligations
09/12/80-01/11/81 FY80: \$10,000 TOTAL: \$10,000
Prin Invest NASA Tech Officer CASE Category
Alley, C. O. MSFC/Decher, R. 31-Atmos Sci

NAS 8-33822 University of Maryland - College Park 2551
Development of a superconducting gravity gradiometer
Period Obligations
07/23/80-01/22/84 FY80: \$88,000 TOTAL: \$88,000
Prin Invest NASA Tech Officer CASE Category
Paik, H. J. MSFC/Urban, E. W. 31-Atmos Sci
Richard, J. P. MSFC/Shriver, E. L.

NCA 2-420001 University of Maryland - College Park 2552
The study of extreme halophiles as possible evolutionary markers
Period Obligations
01/01/80-12/31/81 FY80: \$11,328 TOTAL: \$11,328
Prin Invest NASA Tech Officer CASE Category
Ponnamperuma, C. ARC/Hochstein, L. I. 12-Chemistry

NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)

NCA 2-420901 University of Maryland - College Park 2553
 Production of specific antibody without specific immunization:
 Extension to clinically important antigens

Period	Obligations	
01/01/79-12/31/80	FY80: \$10,000	TOTAL: \$20,000
Prin Invest	NASA Tech Officer	CASE Category
Goldsby, R. A.	ARC/Mandel, A. D.	12-Chemistry

NCA 5-26 University of Maryland - College Park 2554
 Study of digital image processing of astronomical scenes

Period	Obligations	
05/16/78-05/15/79	FY80:	TOTAL: \$6,000
Prin Invest	NASA Tech Officer	CASE Category
Rosenfeld, A.	GSFC/Klinglesmith, D. A.	11-Astronomy

NCA 5-28 University of Maryland - College Park 2555
 Goddard introduction to engineering careers

Period	Obligations	
06/01/78-06/30/81	FY80: \$9,560	TOTAL: \$37,065
Prin Invest	NASA Tech Officer	CASE Category
Wockenfuss, W. A.	GSFC/Chapman, J. W.	49-Engr, NEC

NCC 1-25 University of Maryland - College Park 2556
 Airborne water vapor lidar experiment

Period	Obligations	
08/01/79-02/28/81	FY80: \$47,000	TOTAL: \$88,000
Prin Invest	NASA Tech Officer	CASE Category
Wilkerson, T. D.	LARC/Browell, E. V.	31-Atmos Sci
	LARC/Carter, A. F.	

NCC 1-44 University of Maryland - College Park 2557
 Selected applications of computational aerodynamics

Period	Obligations	
05/01/80-09/30/81	FY80: \$156,625	TOTAL: \$156,625
Prin Invest	NASA Tech Officer	CASE Category
Anderson, J. D.	LARC/Erickson, W. D.	41-Aero Engr
	LARC/Jones, R. A.	

NCC 5-9 University of Maryland - College Park 2558
 Cooperative research in solar and stellar astronomy

Period	Obligations	
04/01/79-05/31/81	FY80: \$68,597	TOTAL: \$141,694
Prin Invest	NASA Tech Officer	CASE Category
Trasco, J. D.	GSFC/Hobbs, R. W.	11-Astronomy
Kundu, M. R.		

NGL 21-002-005 University of Maryland - College Park 2559
 Theoretical research on dynamics of astrophysical plasmas
 including studies of structure of plasma shock waves in solar
 corona and their possible radio emission

Period	Obligations	
02/01/62-06/30/81	FY80:	TOTAL: \$1,107,493
Prin Invest	NASA Tech Officer	CASE Category
Wu, C. S.	HD-ST/Hedin, A. E.	19-Phys Sci, NEC
	HD-ST/Schmerling, E. R.	

NGL 21-002-033 University of Maryland - College Park 2560
 Theoretical and experimental studies in space sciences, including
 consideration of rocket probe and satellites techniques

Period	Obligations	
06/02/64-10/31/82	FY80: \$105,463	TOTAL: \$3,322,298
Prin Invest	NASA Tech Officer	CASE Category
Trasco, J. D.	GSFC/Donn, B. D.	31-Atmos Sci
Kunda, M. R.		

NGR 21-002-066 University of Maryland - College Park 2561
 A study of primary cosmic ray electrons, utilizing balloon-borne
 experiments

Period	Obligations	
11/19/65-06/31/81	FY80: \$30,000	TOTAL: \$855,000
Prin Invest	NASA Tech Officer	CASE Category
Earl, J. A.	HD-SC/Gilman, D. A.	11-Astronomy
	HD-SC/Holt, S. S.	

NGR 21-002-073 University of Maryland - College Park 2562
 Experimental and theoretical investigation of plasma radiation

Period	Obligations	
04/26/66-02/28/81	FY80: \$69,000	TOTAL: \$950,173
Prin Invest	NASA Tech Officer	CASE Category
Griem, H. R.	HD-SC/Roman, N. G.	11-Astronomy
	HD-SC/Weiler, E. J.	

NGR 21-002-096 University of Maryland - College Park 2563
 Research in atmospheric physics

Period	Obligations	
06/21/66-06/30/81	FY80: \$68,000	TOTAL: \$973,186
Prin Invest	NASA Tech Officer	CASE Category
Matthews, D. L.	GSFC/Hartle, R. E.	31-Atmos Sci

NGR 21-002-199 University of Maryland - College Park 2564
 Research in solar radio astronomy at short wavelengths

Period	Obligations	
04/11/69-10/30/80	FY80: \$66,000	TOTAL: \$482,656
Prin Invest	NASA Tech Officer	CASE Category
Kundu, M. R.	HD-ST/Chipman, E.	13-Physics

NGR 21-002-224 University of Maryland - College Park 2565
 Research on the measurement of the charge and isotopic
 composition on the primary cosmic rays

Period	Obligations	
07/31/69-08/31/81	FY80: \$50,000	TOTAL: \$418,000
Prin Invest	NASA Tech Officer	CASE Category
Gloeckler, G.	HD-SC/Gilman, D. A.	11-Astronomy
	HD-SC/Holt, S. S.	

NGR 21-002-270 University of Maryland - College Park 2566
 Research in mechanical theorem proving

Period	Obligations	
05/18/70-06/30/80	FY80:	TOTAL: \$176,661
Prin Invest	NASA Tech Officer	CASE Category
Minker, J.	HD-RE/Gevarter, W. B.	21-Mathematics
	JPL/Friedman, L.	

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NGR 21-002-291 University of Maryland - College Park 2567
Studies of charged particles in natural and laboratory environments

Period	Obligations	
01/28/71-12/31/80	FY80: \$61,151	TOTAL: \$389,072
Prin Invest	NASA Tech Officer	CASE Category
Coplan, M. A.	GSFC/Hoffman, R. A.	13-Physics

NGR 21-002-316 University of Maryland - College Park 2568
Research program in charged particle detector technology

Period	Obligations	
07/01/71-01/14/81	FY80: \$550,000	TOTAL: \$3,210,717
Prin Invest	NASA Tech Officer	CASE Category
Gloeckler, G.	GSFC/Teegarden, B.	13-Physics
Ipavich, F.		
Mason, G.		

NGR 21-002-317 University of Maryland - College Park 2569
Chemical studies of the origin of life

Period	Obligations	
08/18/71-06/30/81	FY80: \$124,023	TOTAL: \$969,181
Prin Invest	NASA Tech Officer	CASE Category
Ponnamperuma, C.	HD-SB/Devincenzi, D. L.	12-Chemistry

NGR 21-002-344 University of Maryland - College Park 2570
Studies on thermophysical properties in critical region of fluids

Period	Obligations	
02/16/72-04/30/80	FY80:	TOTAL: \$83,998
Prin Invest	NASA Tech Officer	CASE Category
Sengers, J. V.	LERC/Simoneau, R. J.	13-Physics

NGR 21-002-399 University of Maryland - College Park 2571
Urbanization and geologic processes in the Chesapeake Bay watershed

Period	Obligations	
03/01/73-05/31/79	FY80:	TOTAL: \$108,511
Prin Invest	NASA Tech Officer	CASE Category
McCuen, R. H.	GSFC/Rango, A.	32-Geological Sci
	GSFC/Salomonson, V. V.	

NGT 21-002-254 University of Maryland - College Park 2572
Summer faculty fellowship program in research for 24 faculty members

Period	Obligations	
12/23/69-03/31/80	FY80:	TOTAL: \$812,235
Prin Invest	NASA Tech Officer	CASE Category
Emad, F. P.	HD-LU/Carter, C. H.	49-Engr, NEC

NGT 21-002-800 University of Maryland - College Park 2573
Estimation of watershed hydraulic length using remote sensing

Period	Obligations	
09/01/80-08/31/81	FY80: \$7,000	TOTAL: \$7,000
Prin Invest	NASA Tech Officer	CASE Category
McCuen, R. H.	GSFC/Salomonson, V. V.	44-Civil Engr
	GSFC/Carter, C. H.	

NGT 21-002-801 University of Maryland - College Park 2574
Graduate student researchers program

Period	Obligations	
09/01/80-08/31/81	FY80: \$5,000	TOTAL: \$5,000
Prin Invest	NASA Tech Officer	CASE Category
Rose, W.	GSFC/Wolff, C.	11-Astronomy

NGT 21-002-802 University of Maryland - College Park 2575
Graduate student researchers program

Period	Obligations	
09/01/80-08/31/81	FY80: \$7,625	TOTAL: \$7,625
Prin Invest	NASA Tech Officer	CASE Category
Wentzel, D. G.	GSFC/Cline, T.	11-Astronomy

NGT 21-002-803 University of Maryland - College Park 2576
Graduate student researchers program

Period	Obligations	
09/01/80-08/31/81	FY80: \$7,625	TOTAL: \$7,625
Prin Invest	NASA Tech Officer	CASE Category
McDonald, F. B.	GSFC/McDonald, F.	13-Physics

NGT 21-002-804 University of Maryland - College Park 2577
Graduate student researchers program

Period	Obligations	
09/01/80-08/31/81	FY80: \$7,625	TOTAL: \$7,625
Prin Invest	NASA Tech Officer	CASE Category
Boldt, E. A.	GSFC/Boldt, E. A.	11-Astronomy

NSG 1468 University of Maryland - College Park 2578
Study of surface acoustic wave charge transfer device

Period	Obligations	
11/15/77-08/14/81	FY80: \$44,997	TOTAL: \$102,669
Prin Invest	NASA Tech Officer	CASE Category
Lin, H. C.	LARC/Benz, H. F.	45-Elec Engr
	LARC/Husson, C.	

NSG 1570 University of Maryland - College Park 2579
General aviation aerodynamics and dynamics

Period	Obligations	
11/01/78-10/31/80	FY80: \$91,950	TOTAL: \$116,797
Prin Invest	NASA Tech Officer	CASE Category
Barlow, J. B.	LARC/Dicarlo, D. J.	41-Aero Engr
Anderson, J. D.	LARC/Chambers, J. R.	
Winkelmann, A. E.		

NSG 2378 University of Maryland - College Park 2580
Production of monoclonal antibodies to human t-cells

Period	Obligations	
04/01/79-03/31/81	FY80: \$42,000	TOTAL: \$84,554
Prin Invest	NASA Tech Officer	CASE Category
Goldsby, R. A.	ARC/Mandel, A. D.	56-Medical Sciences

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NSG 5017 **University of Maryland - College Park** **2581**
Resource identification studies on urban watersheds using the
Anacostia River Basin as an example
Period *Obligations*
07/15/74-12/31/79 **FY80:** **TOTAL: \$118,944**
Prin Invest *NASA Tech Officer* *CASE Category*
Ragan, R. M. GSFC/Salomonsen, V. V. 32-Geological Sci
GSFC/Rango, A.

NSG 5042 **University of Maryland - College Park** **2582**
Study of CO2 waveguide laser life problem
Period *Obligations*
01/12/75-12/31/80 **FY80:** **TOTAL: \$120,685**
Prin Invest *NASA Tech Officer* *CASE Category*
Hochuli, U. E. GSFC/Degnan, J. J. 49-Engr, NEC
Davis, C.

NSG 5123 **University of Maryland - College Park** **2583**
Evaluation of software engineering disciplines
Period *Obligations*
08/01/76-01/31/81 **FY80: \$65,000** **TOTAL: \$232,214**
Prin Invest *NASA Tech Officer* *CASE Category*
Basili, V. R. GSFC/McGarry, F. E. 49-Engr, NEC
Zelkowitz, M. V. GSFC/Tasaki, K. K.

NSG 5137 **University of Maryland - College Park** **2584**
Incorporation of remotely sensed soil moisture data into hydrologic
models
Period *Obligations*
12/01/76-06/30/80 **FY80:** **TOTAL: \$102,815**
Prin Invest *NASA Tech Officer* *CASE Category*
Witczak, M. W. GSFC/Schmugge, T. J. 32-Geological Sci

NSG 5172 **University of Maryland - College Park** **2585**
Raman spectroscopy of cosmic ices and planetary atmospheres
Period *Obligations*
04/01/77-11/30/80 **FY80: \$10,974** **TOTAL: \$59,952**
Prin Invest *NASA Tech Officer* *CASE Category*
Khanna, R. K. GSFC/Donn, B. D. 12-Chemistry

NSG 5177 **University of Maryland - College Park** **2586**
Measurement of interstellar helium impinging on the Earth
Period *Obligations*
06/01/77-06/30/79 **FY80:** **TOTAL: \$41,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Moore, J. H. GSFC/Bissell, E. E. 13-Physics
Opal, C. B. HD-ST/Cauffman, D. P.
Meier, R. R.

NSG 5209 **University of Maryland - College Park** **2587**
Multidisciplinary research program in atmospheric science
Period *Obligations*
09/12/77-12/30/80 **FY80: \$356,000** **TOTAL: \$1,012,247**
Prin Invest *NASA Tech Officer* *CASE Category*
Thompson, O. E. GSFC/Neil, E. A. 31-Atmos Sci

NSG 5234 **University of Maryland - College Park** **2588**
Research of image motion and evaluation and optimization of
the automatic guide system on the forty-eight inch telescope
Period *Obligations*
02/19/78-05/14/80 **FY80:** **TOTAL: \$102,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Currie, D. G. GSFC/Friskey, J. L. 31-Atmos Sci

NSG 5287 **University of Maryland - College Park** **2589**
Evaluate the automatic guider system for possible space ranging
applications
Period *Obligations*
07/15/78-07/14/79 **FY80:** **TOTAL: \$37,404**
Prin Invest *NASA Tech Officer* *CASE Category*
Currie, D. G. GSFC/Winston, G. C. 31-Atmos Sci

NSG 5298 **University of Maryland - College Park** **2590**
Solar gamma-ray astronomy research
Period *Obligations*
08/15/78-09/30/81 **FY80: \$5,000** **TOTAL: \$52,800**
Prin Invest *NASA Tech Officer* *CASE Category*
Holmgren, H. D. GSFC/Kamaty, R. 11-Astronomy

NSG 5313 **University of Maryland - College Park** **2591**
Resonance fluorescence in atmospheric gases research
Period *Obligations*
12/01/78-01/31/81 **FY80: \$130,000** **TOTAL: \$265,000**
Prin Invest *NASA Tech Officer* *CASE Category*
McIlrath, T. J. GSFC/Heaps, W. S. 13-Physics
GSFC/Hudson, R. D.

NSG 5320 **University of Maryland - College Park** **2592**
Ground based solar radio observations solar maximum mission
Period *Obligations*
01/15/79-01/14/81 **FY80: \$66,500** **TOTAL: \$106,500**
Prin Invest *NASA Tech Officer* *CASE Category*
Kundu, M. R. GSFC/Donley, J. L. 31-Atmos Sci

NSG 5323 **University of Maryland - College Park** **2593**
Research of impulse electromagnetic bursts
Period *Obligations*
07/01/79-04/30/81 **FY80: \$12,614** **TOTAL: \$24,932**
Prin Invest *NASA Tech Officer* *CASE Category*
Tidman, D. A. GSFC/Donley, J. L. 31-Atmos Sci

NSG 5390 **University of Maryland - College Park** **2594**
Studies of suspected high carbon abundance planetary nebulae
Period *Obligations*
07/01/79-06/30/80 **FY80:** **TOTAL: \$6,815**
Prin Invest *NASA Tech Officer* *CASE Category*
Harrington, J. P. GSFC/Boggess, A. 11-Astronomy
Marionni, P. A.

NASA'S UNIVERSITY PROGRAM
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NSG 5399 **University of Maryland - College Park** **2595**
Observations of ultraviolet line spectra stars
Period *Obligations*
07/01/79-09/30/80 **FY80:** **TOTAL: \$12,300**
Prin Invest *NASA Tech Officer* *CASE Category*
Bell, R. A. GSFC/Bogges, A. 11-Astronomy

NSG 5404 **University of Maryland - College Park** **2596**
Field aligned particle fluxes and parallel electric potential
Period *Obligations*
10/01/79-02/31/80 **FY80: \$24,000** **TOTAL: \$24,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Lin, C. S. GSFC/Spencer, N. W. 31-Atmos Sci
Rosenberg, T. J.

NSG 5408 **University of Maryland - College Park** **2597**
Study of bow shock ions, particle accelerations and plasmas instabilities
Period *Obligations*
10/01/79-09/30/81 **FY80:** **TOTAL: \$25,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Wu, C. S. GSFC/Corrigan, J. P. 11-Astronomy

NSG 5423 **University of Maryland - College Park** **2598**
Geologic modeling of the Patuxent watershed, Maryland
Period *Obligations*
10/15/79-02/28/81 **FY80: \$57,906** **TOTAL: \$57,906**
Prin Invest *NASA Tech Officer* *CASE Category*
Siegrist, H. G. GSFC/Lowman, P. D. 32-Geological Sci
GSFC/Labovitz, M.

NSG 5424 **University of Maryland - College Park** **2599**
Infrared studies relevant to a satellite of planet Jupiter
Period *Obligations*
10/15/79-11/30/80 **FY80: \$4,395** **TOTAL: \$4,395**
Prin Invest *NASA Tech Officer* *CASE Category*
Khanna, R. K. GSFC/Pearl, J. C. 11-Astronomy

NSG 7046 **University of Maryland - College Park** **2600**
Studies of the Apollo 15 and 16 orbital X-ray data
Period *Obligations*
05/01/74-03/31/81 **FY80: \$16,000** **TOTAL: \$178,197**
Prin Invest *NASA Tech Officer* *CASE Category*
Adler, I. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. E.

NSG 7196 **University of Maryland - College Park** **2601**
Research and development of gravitational experiments for spacecraft
Period *Obligations*
03/01/76-06/30/80 **FY80:** **TOTAL: \$248,513**
Prin Invest *NASA Tech Officer* *CASE Category*
Weber, J. HD-RT/Whiting, E. E. 13-Physics
Davis, W. JPL/Tward, M.
Paik, H. J.

NSG 7253 **University of Maryland - College Park** **2602**
Improving communications between humans and computer-directed automatic systems
Period *Obligations*
07/01/76-08/31/80 **FY80: \$50,000** **TOTAL: \$170, 25**
Prin Invest *NASA Tech Officer* *CASE Category*
Reiger, C. J. HD-RT/Gevarter, W. B. 22-Computer Science
LARC/Woolley, C. R.

NSG 7322 **University of Maryland - College Park** **2603**
Research on comets
Period *Obligations*
03/01/77-05/31/81 **FY80: \$45,500** **TOTAL: \$122,000**
Prin Invest *NASA Tech Officer* *CASE Category*
AHearn, M. F. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Murphy, R. E.

NSG 7340 **University of Maryland - College Park** **2604**
Spectral studies related to dissociation of hydrogen-bromine, hydrogen-chloride and bromine-oxide
Period *Obligations*
06/16/77-08/14/81 **FY80: \$38,000** **TOTAL: \$141,783**
Prin Invest *NASA Tech Officer* *CASE Category*
Ginter, M. L. HD-EB/Toth, R. A. 13-Physics
HD-EB/Tilford, S. G.

NSG 7365 **University of Maryland - College Park** **2605**
Theoretical calculations of nonballistic fluid dynamic flow for ejecta transport in models of multiring basins of impact origin
Period *Obligations*
07/01/77-06/30/80 **FY80:** **TOTAL: \$65,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Pai, S. I. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NSG 7427 **University of Maryland - College Park** **2606**
Numerical simulation experiments in support of NASA solar physics missions: Solar loop and flare studies
Period *Obligations*
12/01/77-11/30/79 **FY80:** **TOTAL: \$124,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Spicer, D. S. HD-ST/Bohlin, J. D. 13-Physics

NSG 7469 **University of Maryland - College Park** **2607**
Colloquium on the Limits of Life
Period *Obligations*
07/01/78-06/31/79 **FY80:** **TOTAL: \$7,500**
Prin Invest *NASA Tech Officer* *CASE Category*
Ponnamperuma, C. HD-SB/Young, R. S. 12-Chemistry

NSG 7382 **University of Maryland - College Park** **2608**
Astrophysical science theory lunar minerals
Period *Obligations*
09/01/78-08/31/80 **FY80:** **TOTAL: \$24,753**
Prin Invest *NASA Tech Officer* *CASE Category*
Tossell, J. HD-SL/Quaide, W. L. 32-Geological Sci

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NSG 7496	University of Maryland - College Park	2609
Experiments with phase transitions at very high pressures		
<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/79	FY80: TOTAL: \$85,035	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Spain, I. L.	HD-RS/Lundholm, J. G., Jr.	13-Physics
NSG 7555	University of Maryland - College Park	2610
X-ray clusters of galaxies, gas dynamics and relativistic particle propagation		
<i>Period</i>	<i>Obligations</i>	
03/01/79-09/30/80	FY80: TOTAL: \$40,608	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Scott, J. S.	HD-SC/Kaluzienski, L. J.	11-Astronomy
NAG 6-3	University of Maryland - Eastern Shore	2611
Phase one: Study of microwave radiation for soil sterilization. Phase two: Analysis of LANDSAT data for sediment in the Chesapeake Bay		
<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/81	FY80: \$28,085 TOTAL: \$28,085	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wutoh, J. G.	WFC/Oberholtzer, J. D.	99-Multi-Discip
NAG 6-4	University of Maryland - Eastern Shore	2612
A survey of trace metal pollution in the lower Eastern Shore area		
<i>Period</i>	<i>Obligations</i>	
07/01/80-06/30/81	FY80: \$10,304 TOTAL: \$10,304	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hung, Y. W.	WFC/Trafford, G. H.	54-Env Biology
NAG 6-6	University of Maryland - Eastern Shore	2613
Comparative analysis of Wallops wind and weather data: Wind as a power source on the Eastern Shore		
<i>Period</i>	<i>Obligations</i>	
08/01/80-07/31/81	FY80: \$25,972 TOTAL: \$25,972	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chapin, E. W.	WFC/Trafford, G. H.	31-Atmos Sci
	WFC/Williams, M. E.	
NAS 6-2855	University of Maryland - Eastern Shore	2614
Services for operation of Wallops Technical Library		
<i>Period</i>	<i>Obligations</i>	
10/01/77-09/30/80	FY80: \$68,605 TOTAL: \$195,998	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, J. C.	WFC/Floyd, J. C.	99-Multi-Discip
Ignasias, C. D.	WFC/Foster, J. N.	
NSG 6025	University of Maryland - Eastern Shore	2615
Surface drift currents in the ocean		
<i>Period</i>	<i>Obligations</i>	
12/01/78-09/30/81	FY80: \$14,934 TOTAL: \$24,934	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dudis J. J.	WFC/Huang, N. E.	33-Oceanography
NSG 6033	University of Maryland - Eastern Shore	2616
Investigation of aspergillus flavus		
<i>Period</i>	<i>Obligations</i>	
06/01/79-03/31/81	FY80: \$22,273 TOTAL: \$122,273	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Albano, M.	WFC/Trafford, G. H.	51-Biological Sci
NSG 6034	University of Maryland - Eastern Shore	2617
Aquatic vascular plants and algae as potential biological components of closed ecological life support systems		
<i>Period</i>	<i>Obligations</i>	
06/01/79-06/30/81	FY80: TOTAL: \$11,321	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gupta, G. C.	WFC/Trafford, G. H.	39-Env Sci, NEC
NSG 7470	University of Maryland - Eastern Shore	2618
Optimization of agricultural productivity in closed ecological life support systems		
<i>Period</i>	<i>Obligations</i>	
07/01/78-09/30/80	FY80: \$20,000 TOTAL: \$60,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Joshi, J. M.	HD-SB/Devincenzi, D. L.	55-Agriculture Sci

MASSACHUSETTS

NAG 8-330	Amherst College	2619
Secular variations in pulsar temperatures		
<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$7,105 TOTAL: \$7,105	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Greenstein, G.	MSFC/Jones, J. B.	11-Astronomy
NSG 7385	Boston College	2620
Investigation of auroral process on the ATS field line		
<i>Period</i>	<i>Obligations</i>	
09/01/77-08/31/78	FY80: TOTAL: \$30,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Eather, R. H.	HD-ST/Taylor, W. W.	39-Env Sci, NEC
	HD-ST/Schmerling, E. R.	
NSG 7468	Boston College	2621
Evaluate and assess the role of theorists in Solar terrestrial research		
<i>Period</i>	<i>Obligations</i>	
06/01/78-12/31/80	FY80: TOTAL: \$66,442	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carovillano, R. L.	HD-ST/Tomayko, D. W.	39-Env Sci, NEC

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAS 5-25445 Boston University 2622
High resolution studies of ultraviolet lines in O-B stars
Period Obligations
12/11/78-10/31/80 FY80: TOTAL: \$7,404
Prin Invest NASA Tech Officer CASE Category
Kamp, L. W. GSFC/Bogges, A. 11-Astronomy

NAS 8-32844 Boston University 2623
Use of the space shuttle to create plasma holes for ionospheric and radio astronomical studies
Period Obligations
10/01/77-09/30/82 FY80: \$27,000 TOTAL: \$67,000
Prin Invest NASA Tech Officer CASE Category
Mendillo, M. MSFC/Guynes, B. V. 31-Atmos Sci
MSFC/Isc, R.

NGR 22-004-025 Boston University 2624
Microbial contributions to the precambrian Earth
Period Obligations
12/15/70-09/30/80 FY80: \$135,930 TOTAL: \$389,281
Prin Invest NASA Tech Officer CASE Category
Margulis, L. HD-SB/Devincenzi, D. L.
32-Geological Sci

NGR 22-004-030 Boston University 2625
Compressible unsteady potential aerodynamic flow around lifting bodies having arbitrary shapes and motions
Period Obligations
12/08/71-12/31/80 FY80: \$100,947 TOTAL: \$626,701
Prin Invest NASA Tech Officer CASE Category
Morino, L. LARC/Yates, E. C., Jr. 41-Aero Engr
Tseng, K. LARC/Desmarais, R. N.

NGT 22-004-800 Boston University 2626
Unsteady transonic aerodynamics research
Period Obligations
09/01/80-08/31/81 FY80: \$10,585 TOTAL: \$10,585
Prin Invest NASA Tech Officer CASE Category
Morino, L. LARC/Yates, E. C. 41-Aero Engr

NGT 22-004-801 Boston University 2627
Unsteady transonic aerodynamics research
Period Obligations
09/01/80-08/31/81 FY80: \$10,585 TOTAL: \$10,585
Prin Invest NASA Tech Officer CASE Category
Morino, L. LARC/Yates, E. C. 41-Aero Engr

NGT 22-004-802 Boston University 2628
Graduate student researchers program
Period Obligations
09/01/80-08/31/81 FY80: \$10,585 TOTAL: \$10,585
Prin Invest NASA Tech Officer CASE Category
Morino, L. LARC/Yates, E. C. 41-Aero Engr

NSG 1644 Boston University 2629
Noisiness and annoyance of noise-tone complexes
Period Obligations
09/01/79-10/15/80 FY80: TOTAL: \$29,271
Prin Invest NASA Tech Officer CASE Category
Hellman, R. D. LARC/Powell, C. A. 69-Psych, NEC
LARC/Key, K. F.

NSG 5389 Boston University 2630
Development of computer models for the analysis of ultraviolet and optical stellar spectra
Period Obligations
06/15/79-06/14/80 FY80: \$14,000 TOTAL: \$26,992
Prin Invest NASA Tech Officer CASE Category
Kamp, L. W. GSFC/Leckrone, D. S. 11-Astronomy

NSG 5407 Boston University 2631
Study of the propagation of geomagnetic pulsation signals
Period Obligations
09/15/79-12/14/81 FY80: \$20,000 TOTAL: \$20,000
Prin Invest NASA Tech Officer CASE Category
Hughes, W. J. GSFC/Corrigan, J. P. 11-Astronomy

NSG 7588 Boston University 2632
Soil stabilization by a prokaryotic terrestrial mat in the southwestern United States. Implications for precambrian terrestrial biota
Period Obligations
04/15/79-11/30/80 FY80: TOTAL: \$16,000
Prin Invest NASA Tech Officer CASE Category
Golubic, S. HD-SB/Devincenzi, D. L.
54-Env Biology

NAS 8-33343 Brandeis University 2633
Study of the X-ray properties of ring galaxies
Period Obligations
02/22/79-07/31/81 FY80: TOTAL: \$1,000
Prin Invest NASA Tech Officer CASE Category
Ghigo, F. D. MSFC/Jones, J. B., Jr. 11-Astronomy

NAS 9-15147 Brandeis University 2634
Vestibular selection criteria development
Period Obligations
09/01/76-03/01/81 FY80: \$46,000 TOTAL: \$182,743
Prin Invest NASA Tech Officer CASE Category
Lackner, J. R. JSC/Homick, J. L. 59-Life Sci, NEC

NSG 5419 Emmanuel College 2635
Phase and amplitude scintillation modeling at equatorial and high latitudes
Period Obligations
10/01/79-12/31/80 FY80: \$23,000 TOTAL: \$23,000
Prin Invest NASA Tech Officer CASE Category
Basu, S. GSFC/Spencer, N. W. 31-Atmos Sci
Aarons, J.

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAG 1-55 **Harvard University** **2636**
Experimental studies of the sources of atmospheric gases
Period *Obligations*
04/03/80-04/02/81 **FY80: \$95,105** **TOTAL: \$95,105**
Pnn Invest *NASA Tech Officer* *CASE Category*
McElroy, M. B. LARC/Fishman, J. 31-Atmos Sci
Wofsy, S. C.

NAG 5-72 **Harvard University** **2637**
Observation of globular clusters and X-ray busters
Period *Obligations*
06/01/80-05/31/81 **FY80: \$9,791** **TOTAL: \$9,791**
Pnn Invest *NASA Tech Officer* *CASE Category*
Grindlay, J. E. GSFC/Boggers, A. 11-Astronomy
Gursky, H.
Davis, R.

NAG 8-302 **Harvard University** **2638**
Collaborative studies of solar-type and other coronae from High Energy Astronomical Observatory-B
Period *Obligations*
01/21/80-01/20/81 **FY80: \$2,901** **TOTAL: \$2,901**
Pnn Invest *NASA Tech Officer* *CASE Category*
Rosner, R. MSFC/Jones, J. B. 11-Astronomy

NAG 8-344 **Harvard University** **2639**
Special observations of WU MA stars
Period *Obligations*
03/01/80-02/28/81 **FY80: \$7,114** **TOTAL: \$7,114**
Pnn Invest *NASA Tech Officer* *CASE Category*
Dupree, A. K. MSFC/Jones, J. B. 11-Astronomy
Noyes, R. W.
Criddle, R. G.

NAGW 2 **Harvard University** **2640**
Coronal plasma processes: Heating and energetic balance of closed coronal structures
Period *Obligations*
11/01/79-03/31/81 **FY80: \$59,865** **TOTAL: \$59,865**
Pnn Invest *NASA Tech Officer* *CASE Category*
Vaiana, G. S. HD-ST/Chipman, E. 13-Physics

NAGW 79 **Harvard University** **2641**
Theoretical program in plasma and magneto hydrodynamics processes relevant to the solar corona and its analogues
Period *Obligations*
06/01/80-05/31/81 **FY80: \$133,000** **TOTAL: \$133,000**
Pnn Invest *NASA Tech Officer* *CASE Category*
Rosner, R. HD-ST/Birmingham, T. J. 13-Physics
HD-ST/Newton, G. P.

NAS 2-10547 **Harvard University** **2642**
Fluid and electrolyte homeostasis during spaceflight: Elucidation of mechanisms in a primate
Period *Obligations*
01/17/80-04/30/81 **FY80: \$39,350** **TOTAL: \$39,350**
Pnn Invest *NASA Tech Officer* *CASE Category*
Moore-cde, M. C. ARC/Ferandin, J. 51-Biological Sci

NAS 5-3949 **Harvard University** **2643**
Study and experiment for a high resolution ultra- violet telescope and spectrometer system
Period *Obligations*
01/28/65-06/30/81 **FY80: \$55,000** **TOTAL: \$39,512,986**
Pnn Invest *NASA Tech Officer* *CASE Category*
Hughes, B. M. MSFC/Snoddy, W. C. 11-Astronomy
MSFC/Fields, S.

NAS 5-23494 **Harvard University** **2644**
X-ray ultraviolet spectroheliometer experiment for synchronous meteorological satellite study effort
Period *Obligations*
05/19/76-09/30/81 **FY80:** **TOTAL: \$4,295,000**
Pnn Invest *NASA Tech Officer* *CASE Category*
Reeves, E. M. GSFC/Donley, J. L. 31-Atmos Sci

NAS 5-24134 **Harvard University** **2645**
Investigation of the upper atmosphere using data from AE satellites
Period *Obligations*
09/19/77-09/30/81 **FY80: \$30,000** **TOTAL: \$173,864**
Pnn Invest *NASA Tech Officer* *CASE Category*
McElroy, M. B. GSFC/Bullock, G. D. 31-Atmos Sci

NAS 5-25677 **Harvard University** **2646**
Very long baseline interferometer upgrading implementation, operation and maintenance of the Harvard Radio Astronomy Station
Period *Obligations*
05/19/80-05/19/81 **FY80: \$131,229** **TOTAL: \$131,229**
Pnn Invest *NASA Tech Officer* *CASE Category*
Lilley, A. E. GSFC/Clark, T. 99-Multi-Discip

NAS 5-25989 **Harvard University** **2647**
Domestic information display system. Concept study
Period *Obligations*
01/07/80-06/30/80 **FY80: \$14,693** **TOTAL: \$14,693**
Pnn Invest *NASA Tech Officer* *CASE Category*
Teicholz, E. GSFC/Quann, J. 21-Mathematics

NAS 6-3061 **Harvard University** **2648**
Reel down/reel up technique for stratospheric and tropospheric observations
Period *Obligations*
10/15/79-06/15/81 **FY80: \$130,942** **TOTAL: \$130,942**
Pnn Invest *NASA Tech Officer* *CASE Category*
Anderson, J. G. WFC/Ballance, C. W. 31-Atmos Sci

NAS 8-31374 **Harvard University** **2649**
Scientific data reduction and analysis activities ATM experiment S-054
Period *Obligations*
01/01/75-06/30/81 **FY80: \$62,371** **TOTAL: \$1,149,959**
Pnn Invest *NASA Tech Officer* *CASE Category*
Vaiana, G. S. MSFC/Snoddy, W. C. 13-Physics
MSFC/Fields, S.

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAS 8-32691 **Harvard University** **2650**
Crystal nucleation in glass-forming alloy and pure metal melts under containerless and vibrationless conditions
Period *Obligations*
06/23/78-06/22/81 **FY80: \$60,000** **TOTAL: \$114,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Turnbull, D. MSFC/Fallon, R. A. 13-Physics
Spaepen, F. MSFC/Lacy, L. L.

NASW 2952 **Harvard University** **2651**
An atmospheric and oceanic nitrous oxide measurement program
Period *Obligations*
06/15/76-12/14/80 **FY80: \$79,935** **TOTAL: \$342,235**
Prin Invest *NASA Tech Officer* *CASE Category*
McElroy, M. B. HD-EB/Toth, R. A. 33-Oceanography
Wofsy, S. C. HD-EB/Tilford, S. G.

NASW 3242 **Harvard University** **2652**
Measurement of compounds in the stratosphere of the Earth and the development of measurement techniques
Period *Obligations*
10/01/78-03/31/82 **FY80 \$1,163,000** **TOTAL: \$2,644,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Anderson, J. G. HD-ST/Seals, R. K., Jr. 31-Atmos Sci

NCC 2-39 **Harvard University** **2653**
Identification and adaptive control of helicopter systems
Period *Obligations*
11/01/79-10/31/81 **FY80: \$86,000** **TOTAL \$86,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Caines, P. F. ARC/Brown, T. J. 41-Aero Engr
ARC/Johnson, W.

NGI 22-007-006 **Harvard University** **2654**
Theoretical and experimental studies on ultraviolet solar physics
Period *Obligations*
07/10/63-09/30/80 **FY80 \$260,000** **TOTAL: \$5,251,398**
Prin Invest *NASA Tech Officer* *CASE Category*
Parkinson, W. H. HD-ST/Chipman, F. 13-Physics

NGI 22-007-069 **Harvard University** **2655**
Infrared absorption spectrophotometry of organic extractives from precambrian sediments
Period *Obligations*
05/29/66-05/31/81 **FY80: \$40,185** **TOTAL \$425,394**
Prin Invest *NASA Tech Officer* *CASE Category*
Barghoorn, F. S. HD-SB/Devincenzi, D. L. 32-Geological Sci

NGI 22-007-228 **Harvard University** **2656**
Theoretical investigation of multiphase in Jupiter interior and possible relationship to behavior of outer atmospheric layers
Period *Obligations*
12/15/71-09/30/81 **FY80: \$516,000** **TOTAL \$1,570,988**
Prin Invest *NASA Tech Officer* *CASE Category*
Goody, R. M. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NGI 22-007-247 **Harvard University** **2657**
Lunar sample analysis
Period *Obligations*
06/30/72-01/31/81 **FY80: TOTAL: \$641,268**
Prin Invest *NASA Tech Officer* *CASE Category*
Hays, J. F. JSC/Harris, J. W. 12-Chemistry

NGR 22-007-202 **Harvard University** **2658**
Investigations in the far ultraviolet solar spectrum
Period *Obligations*
11/05/70-09/30/81 **FY80: TOTAL: \$1,054,920**
Prin Invest *NASA Tech Officer* *CASE Category*
Parkinson, W. H. HD-ST/Bohlin, J. D. 11-Astronomy

NGR 22-007-269 **Harvard University** **2659**
Theoretical research in planetary physics
Period *Obligations*
09/01/73-03/31/81 **FY80: \$100,271** **TOTAL: \$375,846**
Prin Invest *NASA Tech Officer* *CASE Category*
Cameron, A. G. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NGR 22-007-270 **Harvard University** **2660**
The operation of a balloon-borne 40-inch telescope for far infrared astronomy
Period *Obligations*
11/05/73-12/31/80 **FY80: TOTAL: \$553,667**
Prin Invest *NASA Tech Officer* *CASE Category*
Fazio, G. G. HD-SC/Boggess, N. W. 11-Astronomy
HD-SC/Roman, N. G.

NGR 22-007-272 **Harvard University** **2661**
Theoretical studies in space astronomy
Period *Obligations*
09/01/73-08/31/81 **FY80 \$51,282** **TOTAL: \$322,748**
Prin Invest *NASA Tech Officer* *CASE Category*
Cameron, A. G. HD-SC/Kaluznienski, L. J. 11-Astronomy
HD-SC/Holt, S. S.

NSG 2031 **Harvard University** **2662**
Chemistry and dynamics of trace stratospheric gases
Period *Obligations*
07/01/74-09/30/80 **FY80: \$98,812** **TOTAL: \$495,153**
Prin Invest *NASA Tech Officer* *CASE Category*
McElroy, M. B. HD-ST/Kakar, R. K. 31-Atmos Sci
Wofsy, S. C. HD-ST/Tilford, S. G.

NSG 2265 **Harvard University** **2663**
Geometrical methods for nonlinear dynamics
Period *Obligations*
09/01/77-08/31/81 **FY80: \$32,000** **TOTAL: \$114,681**
Prin Invest *NASA Tech Officer* *CASE Category*
Byrnes, C. L. ARC/Doolin, B. F. 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NSG 5128 **Harvard University** **2664**
Lyman alpha coronagraph research sounding rocket program
Period *Obligations*
07/15/76-12/14/80 **FY80: \$260,000** **TOTAL: \$1,189,876**
Prin Invest *NASA Tech Officer* *CASE Category*
Parkinson, W. H. HD-ST/Bohlin, J. D. 13-Physics
Kohl, J. L.

NSG 5176 **Harvard University** **2665**
Research of high resolution vacuum ultraviolet absorption cross-sections of stratospheric molecules
Period *Obligations*
06/01/77-06/14/81 **FY80: \$65,000** **TOTAL: \$217,600**
Prin Invest *NASA Tech Officer* *CASE Category*
Parkinson, W. H. GSFC/Reed, E. I. 13-Physics
Freeman, D. E.
Yoshino, K.

NSG 5226 **Harvard University** **2666**
Studies of selected soft X-ray sources
Period *Obligations*
02/01/78-01/31/79 **FY80:** **TOTAL: \$9,193**
Prin Invest *NASA Tech Officer* *CASE Category*
Dupree, A. K. GSFC/Kupperian, J. E., Jr. 11-Astronomy

NSG 5228 **Harvard University** **2667**
Dynamics and evaluation of Gulf Stream meanders
Period *Obligations*
02/01/78-02/28/81 **FY80: \$83,702** **TOTAL: \$122,807**
Prin Invest *NASA Tech Officer* *CASE Category*
Robinson, A. R. GSFC/Halem, M. 33-Oceanography

NSG 5229 **Harvard University** **2668**
Ultraviolet investigations of stellar X-ray sources
Period *Obligations*
02/01/78-01/31/79 **FY80:** **TOTAL: \$39,885**
Prin Invest *NASA Tech Officer* *CASE Category*
Dupree, A. K. GSFC/Bogges, A. 11-Astronomy
GSFC/West, D. K.

NSG 5239 **Harvard University** **2669**
Observations of stellar chromospheres and coronae
Period *Obligations*
03/01/78-02/28/79 **FY80:** **TOTAL: \$21,500**
Prin Invest *NASA Tech Officer* *CASE Category*
Dupree, A. K. GSFC/Bogges, A. 11-Astronomy
GSFC/West, D. K.

NSG 5293 **Harvard University** **2670**
Studies of the local interstellar medium
Period *Obligations*
08/01/78-09/30/79 **FY80:** **TOTAL: \$15,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Dupree, A. K. GSFC/Kupperian, J. E., Jr. 11-Astronomy

NSG 5312 **Harvard University** **2671**
X-ray observations of a compact binary source
Period *Obligations*
12/15/78-12/14/79 **FY80:** **TOTAL: \$8,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Dupree, A. K. GSFC/Kupperian, J. E., Jr. 11-Astronomy

NSG 5370 **Harvard University** **2672**
Ultraviolet studies of astronomical sources
Period *Obligations*
06/01/79-11/30/80 **FY80: \$37,953** **TOTAL: \$65,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Dupree, A. K. GSFC/Bogges, A. 11-Astronomy
Dalgarno, A.

NSG 5380 **Harvard University** **2673**
International Ultraviolet Experiment (IUE) observations of interstellar carbon
Period *Obligations*
07/01/79-12/31/79 **FY80:** **TOTAL: \$8,531**
Prin Invest *NASA Tech Officer* *CASE Category*
Dupree, A. K. GSFC/Bogges, A. 11-Astronomy
Black, J. H.

NSG 7095 **Harvard University** **2674**
Reflection spectra of sodium doped ammonia ice
Period *Obligations*
10/25/74-06/30/80 **FY80:** **TOTAL: \$189,565**
Prin Invest *NASA Tech Officer* *CASE Category*
Pipkin, F. M. HD-SL/Murphy, R. E. 31-Atmos Sci

NSG 7176 **Harvard University** **2675**
Participation in NASA core funding
Period *Obligations*
11/01/75-03/31/82 **FY80: \$254,000** **TOTAL: \$1,354,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Field, G. B. HD-SP/Heninger, L. W.
McElroy, M. B. HD-SP/Taylor, T. C. 19-Phys Sci, NEC

NSG 7304 **Harvard University** **2676**
Absolute transition probabilities in ultraviolet spectra of interstellar molecules
Period *Obligations*
12/15/76-02/13/81 **FY80: \$51,000** **TOTAL: \$169,525**
Prin Invest *NASA Tech Officer* *CASE Category*
Parkinson, W. H. HD-SC/Bogges, N. W. 31-Atmos Sci
HD-SC/Weiler, E. J.

NSG 7332 **Harvard University** **2677**
Planetary speckle imaging
Period *Obligations*
03/01/77-12/31/79 **FY80:** **TOTAL: \$161,366**
Prin Invest *NASA Tech Officer* *CASE Category*
Goody, R. M. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Quaide, W. L.

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NSG 7461 **Harvard University** **2678**
Computer assisted performance tests of the Lyman-alpha coronagraph
Period *Obligations*
07/01/78-06/30/79 **FY80:** **TOTAL: \$20,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Parkinson, W. H. HD-ST/Bohlin, J. D. 11-Astronomy

NSG 7497 **Harvard University** **2679**
Coronal plasma heating
Period *Obligations*
10/01/78-09/30/81 **FY80:** **TOTAL: \$34,673**
Prin Invest *NASA Tech Officer* *CASE Category*
Vaiana, G. S. HD-ST/Bohlin, J. D. 13-Physics

NSG 7513 **Harvard University** **2680**
Creep and fracture properties of the Moon
Period *Obligations*
01/01/79-06/30/80 **FY80:** **TOTAL: \$27,127**
Prin Invest *NASA Tech Officer* *CASE Category*
O'Connell, R. J. HD-SL/Quaide, W. L. 32-Geological Sci

NSG 7537 **Harvard University** **2681**
Coronal plasma processes: Heating and energetic balance of closed coronal structures
Period *Obligations*
01/01/79-12/31/80 **FY80:** **TOTAL: \$56,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Vaiana, G. S. HD-ST/Bohlin, J. D. 13-Physics

NSG 7648 **Harvard University** **2682**
Solar maximum mission: Ground support programs at the Harvard Radio Astronomy Station
Period *Obligations*
07/01/79-06/30/81 **FY80: \$152,427** **TOTAL: \$152,427**
Prin Invest *NASA Tech Officer* *CASE Category*
Maxwell, A. HD-ST/Chipman, E. 13-Physics

NSG 9054 **Harvard University** **2683**
Fluid and electrolyte homeostasis during spaceflight. Ground-based preparative studies in a primate
Period *Obligations*
02/01/77-01/31/81 **FY80: \$48,000** **TOTAL: \$183,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Moore-ede, M. C. JSC/Leach, C. S. 56-Medical Sciences

NAG 1-2 **Massachusetts Institute of Technology** **2684**
Hybrid operator models for digitally-implemented control systems
Period *Obligations*
12/01/79-05/31/81 **FY80: \$40,000** **TOTAL: \$40,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Stein, G. LARC/Armstrong, E. S. 45-Elec Engr
LARC/Elliott, J. R.

NAG 1-12 **Massachusetts Institute of Technology** **2685**
Investigation of some critical phenomena in the N-vortex system with application to large scale turbulent noise spectra
Period *Obligations*
11/15/79-11/14/80 **FY80: \$20,000** **TOTAL: \$20,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Young, J. E. LARC/Hardin, J. C. 13-Physics

NAG 1-48 **Massachusetts Institute of Technology** **2686**
Development of single mode, high temperature continuous wave (CW) plumbum-stannum-tellurium (PBSNTE) laser diodes
Period *Obligations*
03/01/80-02/28/81 **FY80: \$75,000** **TOTAL: \$75,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Fonstad, C. G. LARC/Hendricks, H. D. 45-Elec Engr
LARC/Hoell, J. M.

NAG 1-60 **Massachusetts Institute of Technology** **2687**
Research on unsteady, three-dimensional transonic flow
Period *Obligations*
05/01/80-04/30/81 **FY80: \$45,402** **TOTAL: \$45,402**
Prin Invest *NASA Tech Officer* *CASE Category*
Harris, W. L. LARC/Bland, S. R. 41-Aero Engr
LARC/Whitlow, W.

NAG 1-92 **Massachusetts Institute of Technology** **2688**
Analysis of remote measurements of carbon monoxide from Convair 990 during monsoon experiment
Period *Obligations*
09/01/80-08/31/81 **FY80: \$46,000** **TOTAL: \$46,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Newell, R. E. LARC/Reichle, H. G. 31-Atmos Sci
LARC/Wallio, H. A.

NAG 1-96 **Massachusetts Institute of Technology** **2689**
Photovoltaic effect in ferroelectric ceramics
Period *Obligations*
09/01/80-08/31/81 **FY80: \$53,000** **TOTAL: \$53,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Epstein, D. J. LARC/Hayes, P. J. 45-Elec Engr
Linz, A.
Jenssen, H. P.

NAG 1-100 **Massachusetts Institute of Technology** **2690**
Microwave heating of supercooled water droplets
Period *Obligations*
09/01/80-08/31/81 **FY80: \$73,726** **TOTAL: \$73,726**
Prin Invest *NASA Tech Officer* *CASE Category*
Hollister, W. M. LARC/Croswell, W. F. 13-Physics
LARC/Bailey, M. C.

**NASA'S UNIVERSITY PROGRAM
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NAG 2-12 **Massachusetts Institute of Technology** **2691**
Research on visual vestibular interaction and its application to flight simulation

Period	Obligations	
12/01/79-11/30/80	FY80: \$65,000	TOTAL: \$65,000
Prin Invest	NASA Tech Officer	CASE Category
Young, L. R.	ARC/Stewart, J. D.	49-Engr, NEC
Oman, C. M.		

NAG 3-100 **Massachusetts Institute of Technology** **2697**
Conceptual design of an engineering test facility superconducting magnetohydrodynamic magnet system

Period	Obligations	
08/22/80-11/22/80	FY80: \$70,000	TOTAL: \$70,000
Prin Invest	NASA Tech Officer	CASE Category
Marston, P. G.	LERC/Burkhart, J. A.	49-Engr, NEC
Hatch, A. M.	LERC/Bercaw, R. W.	
Tarrh, J. M.		

NAG 2-47 **Massachusetts Institute of Technology** **2692**
Development of analytical techniques for rotor aerodynamic analysis

Period	Obligations	
10/01/80-09/30/81	FY80: \$58,627	TOTAL: \$58,627
Prin Invest	NASA Tech Officer	CASE Category
Miller, R. H.	ARC/Dizialz, R. A.	41-Aero Engr
	ARC/Johnson, W.	

NAG 5-2 **Massachusetts Institute of Technology** **2698**
Research in image filtering and data compression

Period	Obligations	
01/01/80-12/31/80	FY80: \$99,972	TOTAL: \$99,972
Prin Invest	NASA Tech Officer	CASE Category
Oppenheim, A. V.	GSFC/Argentiero, P. D.	
Dudgeon, D. E.	GSFC/Schaefer, D.	39-Env Sci, NEC

NAG 2-50 **Massachusetts Institute of Technology** **2693**
A long baseline stellar interferometer for astronomy

Period	Obligations	
08/01/80-07/31/81	FY80: \$50,000	TOTAL: \$50,000
Prin Invest	NASA Tech Officer	CASE Category
Staelin, D. H.	ARC/Black, D. C.	11-Astronomy
Shao, M.		

NAG 5-10 **Massachusetts Institute of Technology** **2699**
Improved microwave retrieval techniques for atmospheric temperatures, winds and humidity

Period	Obligations	
02/01/80-01/31/81	FY80: \$84,000	TOTAL: \$84,000
Prin Invest	NASA Tech Officer	CASE Category
Staelin, D. H.	GSFC/Susskind, J.	31-Atmos Sci

NAG 3-9 **Massachusetts Institute of Technology** **2694**
Research applied to transonic compressors in numerical fluid mechanics of inviscid flow and viscous flow

Period	Obligations	
12/01/79-11/30/80	FY80: \$74,630	TOTAL: \$74,630
Prin Invest	NASA Tech Officer	CASE Category
Thompson, W. T.	LERC/Chima, R.	41-Aero Engr

NAG 5-16 **Massachusetts Institute of Technology** **2700**
Research on theories for microwave remote sensing flow

Period	Obligations	
03/01/80-02/28/81	FY80: \$30,000	TOTAL: \$30,000
Prin Invest	NASA Tech Officer	CASE Category
Kong, J. A.	GSFC/Chang, A. T.	32-Geological Sci

NAG 3-33 **Massachusetts Institute of Technology** **2695**
Advanced stress analysis of turbine engine structures

Period	Obligations	
04/01/80-03/31/81	FY80: \$59,993	TOTAL: \$59,993
Prin Invest	NASA Tech Officer	CASE Category
Pian, T. H.	LERC/Chamis, C. C.	46-Mech Engr
	LERC/Hirschbein, M. S.	

NAG 5-19 **Massachusetts Institute of Technology** **2701**
Seismicity and active tectonics of the Andes and the origin of the Altiplano

Period	Obligations	
03/01/80-02/28/81	FY80: \$49,494	TOTAL: \$49,494
Prin Invest	NASA Tech Officer	CASE Category
Molnar, P.	GSFC/Sullivan, W. B.	32-Geological Sci
Burchfield, B. C.	GSFC/Frey, H. V.	

NAG 3-82 **Massachusetts Institute of Technology** **2696**
Development and use of generalized internal combustion engine cycle simulations

Period	Obligations	
06/23/80-06/22/81	FY80: \$60,062	TOTAL: \$60,062
Prin Invest	NASA Tech Officer	CASE Category
Haywood, J. B.	LERC/Cassidy, J. F.	41-Aero Engr
	LERC/Willis, E.	

NAG 5-41 **Massachusetts Institute of Technology** **2702**
Geophysical study of the structures and processes of the continental convergence zones

Period	Obligations	
05/01/80-04/30/81	FY80: \$50,000	TOTAL: \$50,000
Prin Invest	NASA Tech Officer	CASE Category
Toksoz, M. N.	GSFC/Sullivan, W. B.	32-Geological Sci
Molnar, P.	GSFC/Frey, H. V.	

NAG 5-43 **Massachusetts Institute of Technology** **2703**
Observations of the ultraviolet spectra of astronomical sources

Period	Obligations	
04/15/80-04/14/81	FY80: \$7,705	TOTAL: \$7,705
Prin Invest	NASA Tech Officer	CASE Category
McClintock, J. E.	GSFC/Bobbess, A.	11-Astronomy

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NAG 5-44 **Massachusetts Institute of Technology** **2704**
Application of laser ranging and very long baseline interferometer data to a study of plate tectonic driving forces
Period *Obligations*
05/01/80-04/30/81 FY80: \$68,000 TOTAL: \$68,000
Prin Invest *NASA Tech Officer* *CASE Category*
Solomon, S. C. GSFC/Sullivan, W. B. 32-Geological Sci
Toksoz, M. N. GSFC/Frey, H. V.

NAG 5-89 **Massachusetts Institute of Technology** **2705**
The role of vegetation in the water balance of a land surface
Period *Obligations*
07/01/80-06/30/81 FY80: \$19,932 TOTAL: \$19,932
Prin Invest *NASA Tech Officer* *CASE Category*
Eagleson, P. S. GSFC/Halem, M. 32-Geological Sci

NAGW 14 **Massachusetts Institute of Technology** **2706**
Feasibility and development study of a mercuric iodide solid state spectrometer for advanced X-ray astrophysics facility
Period *Obligations*
10/01/79-09/30/80 FY80: \$89,313 TOTAL: \$89,313
Prin Invest *NASA Tech Officer* *CASE Category*
Ricker, G. R. HD-SC/Kaluzienski, L. J. 11-Astronomy
HD-SC/Opp, A. G.

NAGW 21 **Massachusetts Institute of Technology** **2707**
Research program encompassed by space engineering
Period *Obligations*
11/01/79-09/30/80 FY80: \$296,757 TOTAL: \$296,757
Prin Invest *NASA Tech Officer* *CASE Category*
Mar, J. W. HD-RT/Greenfield, M.A. 42-Astro Engr

NAGW 49 **Massachusetts Institute of Technology** **2708**
Thermal histories of lunar rocks
Period *Obligations*
03/01/80-02/28/81 FY80: \$54,931 TOTAL: \$54,931
Prin Invest *NASA Tech Officer* *CASE Category*
Uhlmann, D. R. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NAGW 68 **Massachusetts Institute of Technology** **2709**
Studies of planetary upper atmospheres through occultations
Period *Obligations*
07/01/80-06/30/81 FY80: \$49,960 TOTAL: \$49,960
Prin Invest *NASA Tech Officer* *CASE Category*
James, E. L. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Quaide, W. L.

NAS 1-15154 **Massachusetts Institute of Technology** **2710**
A study of noise and performance of propellers for light aircraft
Period *Obligations*
01/20/78-10/31/80 FY80: \$52,444 TOTAL: \$372,035
Prin Invest *NASA Tech Officer* *CASE Category*
Ingard, K. V. LARC/Hubbard, H. H. 41-Aero Engr
Kerrebrock, J. L.

NAS 1-15268 **Massachusetts Institute of Technology** **2711**
Air transportation research and analysis
Period *Obligations*
03/15/78-03/14/81 FY80: TOTAL: \$141,977
Prin Invest *NASA Tech Officer* *CASE Category*
Taneja, N. K. LARC/Maddalon, D. V. 41-Aero Engr
Ausrotas, R. A.

NAS 2-9473 **Massachusetts Institute of Technology** **2712**
Pioneer Venus data analysis of the radar altimeter experiment
Period *Obligations*
01/20/77-09/30/80 FY80: \$176,910 TOTAL: \$470,570
Prin Invest *NASA Tech Officer* *CASE Category*
Pettingill, G. H. ARC/Hall, C. F. 11-Astronomy
ARC/Porter, D. L.

NAS 2-9483 **Massachusetts Institute of Technology** **2713**
Pioneer Venus data analysis of the Orbiting Celestial Mechanics (OCM) experiment
Period *Obligations*
02/17/78-09/30/80 FY80: \$151,050 TOTAL: \$327,312
Prin Invest *NASA Tech Officer* *CASE Category*
Shapiro, I. I. ARC/Hall, C. F. 11-Astronomy
ARC/Porter, D. L.

NAS 2-10720 **Massachusetts Institute of Technology** **2714**
Air traffic control simulation study
Period *Obligations*
05/01/80-08/28/80 FY80: \$19,159 TOTAL: \$19,159
Prin Invest *NASA Tech Officer* *CASE Category*
Simpson, R. W. ARC/Nagel, D. C. 41-Aero Engr
Odoni, A. R.

NAS 3-20473 **Massachusetts Institute of Technology** **2715**
Testing a NASA 20-inch stage an Air Force mass flow stage
Period *Obligations*
10/29/76-06/12/80 FY80: TOTAL: \$482,116
Prin Invest *NASA Tech Officer* *CASE Category*
Kerrebrock, J. L. LERC/Crouse, J. E. 41-Aero Engr
Epstein, A. H.
Thompkins, W. T.

NAS 5-11062 **Massachusetts Institute of Technology** **2716**
IMP H and J plasma experiment
Period *Obligations*
05/17/78-03/79 FY80: \$79 TOTAL: \$2,409,079
Prin Invest *NASA Tech Officer* *CASE Category*
Bridge, H. S. GSFC/Davis, M. A. 13-Physics

NAS 5-21980 **Massachusetts Institute of Technology** **2717**
Nimbus-F scanning microwave spectrometer data reduction and analysis
Period *Obligations*
01/25/74-12/31/79 FY80: TOTAL: \$623,816
Prin Invest *NASA Tech Officer* *CASE Category*
Staelin, D. H. GSFC/Brandeen, W. R. 31-Atmos Sci

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NAS 8-31350 **Massachusetts Institute of Technology** **2732**
Uniform dispersions of crystallization processing
Period *Obligations*
07/01/75-03/31/79 **FY80:** **TOTAL: \$472,527**
Prin Invest *NASA Tech Officer* *CASE Category*
Uhlmann, D. R. MSFC/Reeves, F. A. 47-Materials Engr
MSFC/Williams, J.

NAS 8-32925 **Massachusetts Institute of Technology** **2733**
Study for extraterrestrial processing and manufacturing of large space systems
Period *Obligations*
06/20/78-07/31/79 **FY80:** **TOTAL: \$109,224**
Prin Invest *NASA Tech Officer* *CASE Category*
Miller, R. H. MSFC/Vontiesenhausen, G. F.
Smith, D. B. MSFC/Priest, C. C. 47-Materials Engr
Akin, D. L.

NAS 8-32994 **Massachusetts Institute of Technology** **2734**
Research study growth of solid solution semiconductors
Period *Obligations*
07/17/78-09/10/80 **FY80: \$53,063** **TOTAL: \$93,063**
Prin Invest *NASA Tech Officer* *CASE Category*
Hitt, A. F. MSFC/Reeves, F. A. 13-Physics
MSFC/Williams, J. R.

NAS 8-33137 **Massachusetts Institute of Technology** **2735**
Apollo telescope mount guest investigator program for studying coronal sources of the intra stream structure of the solar wind
Period *Obligations*
10/30/78-10/29/80 **FY80:** **TOTAL: \$17,620**
Prin Invest *NASA Tech Officer* *CASE Category*
Sullivan, J. D. MSFC/DeLoach, A. C. 13-Physics
MSFC/Snoddy, W. C.

NAS 8-33138 **Massachusetts Institute of Technology** **2736**
Apollo telescope mount guest investigator program for modeling of quasi-static coronal loops and arcades
Period *Obligations*
09/20/78-03/31/80 **FY80:** **TOTAL: \$56,250**
Prin Invest *NASA Tech Officer* *CASE Category*
Frankenthal, S. MSFC/DeLoach, A. C. 13-Physics
MSFC/Snoddy, W. C.

NAS 9-15343 **Massachusetts Institute of Technology** **2737**
Definition of Spacelab I experiment on vestibular experiments
Period *Obligations*
04/04/77-09/30/82 **FY80: \$379,500** **TOTAL: \$907,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Young, L. R. JSC/Evans, J. S. 59-Life Sci, NEC

NAS 9-16008 **Massachusetts Institute of Technology** **2738**
Evaluation of engineered foods for CELSS (Closed Ecological Life Support System)
Period *Obligations*
02/01/80-03/01/82 **FY80: \$50,000** **TOTAL: \$50,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Karel, M. JSC/Sauer, R. L. 59-Life Sci NEC

NCA 2-425801 **Massachusetts Institute of Technology** **2739**
Participation of transfer RNA in the origin of protein biosynthesis
Period *Obligations*
11/01/77-09/30/80 **FY80:** **TOTAL: \$27,500**
Prin Invest *NASA Tech Officer* *CASE Category*
Rich, A. ARC/MackLroy, R. D. 51-Biological Sci

NCC 1-23 **Massachusetts Institute of Technology** **2740**
Cockpit Display of Traffic Information (CDTI) crew function assessment
Period *Obligations*
07/01/79-10/31/80 **FY80: \$32,358** **TOTAL: \$70,653**
Prin Invest *NASA Tech Officer* *CASE Category*
Whitchurst, C. A. LARC/Harris, R. L., Sr. 41-Aero Engr
Young, L. R.

NCC 1-45 **Massachusetts Institute of Technology** **2741**
Algorithms for computational fluid dynamics
Period *Obligations*
09/01/80-05/31/81 **FY80: \$41,178** **TOTAL: \$41,178**
Prin Invest *NASA Tech Officer* *CASE Category*
Abarbanel, S. S. LARC/Dwoyer, D. L. 41-Aero Engr
LARC/Thomas, F. C.

NCC 3-1 **Massachusetts Institute of Technology** **2742**
Molecular-orbital studies of metal-insulator interfaces
Period *Obligations*
07/01/79-06/29/81 **FY80: \$35,275** **TOTAL: \$68,275**
Prin Invest *NASA Tech Officer* *CASE Category*
Johnson, K. H. LERC/Pepper, S. V. 19-Phys Sci, NEC
Wallace, S.

NCC 3-15 **Massachusetts Institute of Technology** **2743**
Methanol as a fuel extender for stationary gas turbine combustors
Period *Obligations*
09/01/80-11/30/80 **FY80: \$30,013** **TOTAL: \$30,013**
Prin Invest *NASA Tech Officer* *CASE Category*
Hoult, D. P. LERC/Brabbs, T. A. 12-Chemistry

NCC 5-4 **Massachusetts Institute of Technology** **2744**
Geophysical study of the structures and processes of the continental convergence zones
Period *Obligations*
05/01/79-04/30/80 **FY80:** **TOTAL: \$49,800**
Prin Invest *NASA Tech Officer* *CASE Category*
Molnar, P. GSFC/Mead, G. D. 32-Geological Sci
Toksoz, M. N.

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MASSACHUSETTS (Continued)

NCC 5-14 **Massachusetts Institute of Technology** **2745**
 Application of laser ranging and very long baseline interferometer data to a study of plate tectonics driving forces

Period	Obligations
05/01/79-04/30/80	FY80: TOTAL: \$69,850
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Solomon, S. C.	GSFC/Mead, G. D. 32-Geological Sci
Toksoz, M. N.	

NGL 22-009-015 **Massachusetts Institute of Technology** **2746**
 Theoretical and experimental investigations of interplanetary medium and in gamma ray astronomy

Period	Obligations
01/01/63-12/31/80	FY80: TOTAL: \$4,826,339
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Bridge, H. S.	HD-ST/Cauffman, D. P. 13-Physics
	HD-ST/Schmerling, E. R.

NGL 22-009-124 **Massachusetts Institute of Technology** **2747**
 Control optimization stabilization and computation of algorithms for space applications

Period	Obligations
03/30/66-12/31/82	FY80: \$70,000 TOTAL: \$1,002,289
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Athans, M.	ARC/Doolin, B. F. 49-Engr, NEC
Willisky, A. S.	

NGL 22-009-308 **Massachusetts Institute of Technology** **2748**
 Maturation and development of mechanisms of orientation and postural control

Period	Obligations
12/01/67-11/30/80	FY80: TOTAL: \$824,646
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Held, R. M.	ARC/Dauntton, N. G. 69-Psych, NEC

NGL 22-009-383 **Massachusetts Institute of Technology** **2749**
 Research in propulsion and power generation

Period	Obligations
01/16/69-08/31/82	FY80: \$70,000 TOTAL: \$1,108,167
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Kerrebrock, J. L.	LERC/Gorrell, W. T. 41-Aero Engr
Epstein, A. H.	
Thompkins, W. T.	

NGL 22-009-521 **Massachusetts Institute of Technology** **2750**
 Composition and structure of planetary atmospheres

Period	Obligations
08/10/70-06/30/81	FY80: \$166,335 TOTAL: \$817,642
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Lewis, J. S.	HD-SL/Murphy, R. E. 31-Atmos Sci
	HD-SL/Brunk, W. E.

NGL 22-009-638 **Massachusetts Institute of Technology** **2751**
 Research in space science

Period	Obligations
03/03/72-03/31/82	FY80: \$170,000 TOTAL: \$1,970,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Bridge, H. S.	HD-SP/Heninger, L. W. 99-Multi-Discip
	HD-SP/Taylor, T. C.

NGL 22-009-640 **Massachusetts Institute of Technology** **2752**
 Joint university research program future air transportation technological needs

Period	Obligations
11/16/71-01/31/83	FY80: \$75,001 TOTAL: \$643,333
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Simpson, R. W.	LARC/Downing, D. R. 41-Aero Engr
	LARC/MacE, W. D.

NGR 22-009-005 **Massachusetts Institute of Technology** **2753**
 Detection and identification of organic matter by mass spectrometry

Period	Obligations
12/01/61-09/30/80	FY80: \$80,000 TOTAL: \$1,193,262
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Biemann, K.	HD-SB/Devincenzi, D. L. 51-Biological Sci

NGR 22-009-277 **Massachusetts Institute of Technology** **2754**
 The prebiotic synthesis of polynucleotides and polynucleotide-directed polypeptides

Period	Obligations
12/01/67-07/31/81	FY80: \$67,568 TOTAL: \$627,370
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Rich, A.	HD-SB/Geib, D. S. 12-Chemistry

NGR 22-009-339 **Massachusetts Institute of Technology** **2755**
 Investigation of containment/control of fragments from bursting turbine rotors

Period	Obligations
06/14/68-12/14/80	FY80: \$77,694 TOTAL: \$893,559
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Witmer, E. A.	LERC/Weiss, S. 41-Aero Engr
	LERC/Holms, A. G.

NGR 22-009-378 **Massachusetts Institute of Technology** **2756**
 Study of pollutants from jet aircraft

Period	Obligations
02/14/69-09/30/78	FY80: TOTAL: \$738,174
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Heywood, J. B.	LERC/Mularz, E. J. 43-Chem Engr
Chigier, N. A.	LERC/Diehl, L. A.

NGR 22-009-526 **Massachusetts Institute of Technology** **2757**
 Astronomy in the region between 1 mm to 0.1 mm wavelengths

Period	Obligations
09/22/70-09/30/80	FY80: \$60,000 TOTAL: \$527,404
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Weiss, R.	HD-SC/Bogges, N. W. 11-Astronomy
	HD-SC/Roman, N. G.

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NGR 22-009-551 Massachusetts Institute of Technology 2758
Lunar sample analysis
Period Obligations
02/11/71-09/30/79 FY80: TOTAL: \$453,300
Prin Invest NASA Tech Officer CASE Category
Burns, R. G. JSC/Harris, J. W. 12-Chemistry

NGR 22-009-627 Massachusetts Institute of Technology 2759
Control of serotonin-containing neurons in the brain, by plasma
tryptophan
Period Obligations
08/04/71-10/30/80 FY80: \$70,000 TOTAL: \$565,360
Prin Invest NASA Tech Officer CASE Category
Wurtman, R. J. ARC/Winget, C. M. 56-Medical Sciences
Furnstrom, J. D.

NGR 22-009-672 Massachusetts Institute of Technology 2760
Ground-based radar study of the Moon and planets
Period Obligations
03/06/72-10/31/80 FY80: TOTAL: \$414,320
Prin Invest NASA Tech Officer CASE Category
Pettengill, G. H. HD-SL/Brunk, W. F. 11-Astronomy
HD-SL/Murphy, R. F.

NGR 22-009-723 Massachusetts Institute of Technology 2761
Bosch process and evaluation of Bosch carbon as a sorbent
Period Obligations
09/19/72-01/31/81 FY80: TOTAL: \$198,994
Prin Invest NASA Tech Officer CASE Category
Reid, R. C. ARC/Quattrone, P. D. 12-Chemistry

NGR 22-009-727 Massachusetts Institute of Technology 2762
Study in numerical modeling of atmospheric phenomena
Period Obligations
02/01/73-11/30/80 FY80: \$175,600 TOTAL: \$909,163
Prin Invest NASA Tech Officer CASE Category
Charney, J. GSFC/Halem, M. 31-Atmos Sci
Stone, P. H.

NGR 22-009-730 Massachusetts Institute of Technology 2763
X-ray astronomy experiments from sounding rockets
Period Obligations
03/22/72-08/31/81 FY80: \$180,000 TOTAL: \$1,440,000
Prin Invest NASA Tech Officer CASE Category
Rappaport, S. A. GSFC/Bissell, E. E. 11-Astronomy
Boughan, F. HD-SC/Opp, A. G.
Levine, A.

NGR 22-009-790 Massachusetts Institute of Technology 2764
Remote compositional mapping of the lunar surface
Period Obligations
06/22/73-01/31/79 FY80: TOTAL: \$1,084,165
Prin Invest NASA Tech Officer CASE Category
McCord, T. B. HD-SL/Williams, R. J. 32-Geological Sci
HD-SL/Flinn, E. A.

NGR 22-009-798 Massachusetts Institute of Technology 2765
Role of brain areas controlling eye-head coordination in
monkeys
Period Obligations
09/01/73-11/30/80 FY80: \$30,000 TOTAL: \$198,000
Prin Invest NASA Tech Officer CASE Category
Bizzi, E. ARC/Daunton, N. G. 51-Biological Sci

NGR 22-009-826 Massachusetts Institute of Technology 2766
Neural orientation growth and maintenance
Period Obligations
09/01/73-11/30/80 FY80: \$25,000 TOTAL: \$183,000
Prin Invest NASA Tech Officer CASE Category
Graybiel, A. M. ARC/Daunton, N. G. 51-Biological Sci
Hein, A. V.

NGR 22-009-839 Massachusetts Institute of Technology 2767
Wideband recording system for very long baseline in-
terferometry
Period Obligations
04/01/74-10/31/88 FY80: \$120,000 TOTAL: \$564,170
Prin Invest NASA Tech Officer CASE Category
Counselman, C. C. GSFC/Clark, T. A. 32-Geological Sci
Shapiro, I. I. GSFC/Ryan, J. W.

NGT 22-009-900 Massachusetts Institute of Technology 2768
Visiting assistant professor program
Period Obligations
04/01/80-03/31/82 FY80: \$111,500 TOTAL: \$111,500
Prin Invest NASA Tech Officer CASE Category
Wunsch, C. I. GSFC/Halem, M. 33-Oceanography

NSG 1323 Massachusetts Institute of Technology 2769
Research in algebraic manipulation
Period Obligations
07/01/76-06/30/81 FY80: \$27,083 TOTAL: \$181,067
Prin Invest NASA Tech Officer CASE Category
Moses, J. LARC/Shoosmith, J. N.
22-Computer Science

NSG 1356 Massachusetts Institute of Technology 2770
Study of feasibility of applying superconducting coil technology
to general purpose magnetic balance and suspension system
Period Obligations
01/01/77-08/31/80 FY80: \$20,799 TOTAL: \$269,610
Prin Invest NASA Tech Officer CASE Category
Haldeman, C. W. LARC/Boyden, R. P. 41-Aero Engr
LARC/Kilgore, R. A.

NSG 1502 Massachusetts Institute of Technology 2771
Closed-loop roll control for magnetic balance systems
Period Obligations
02/01/78-01/31/81 FY80: \$76,028 TOTAL: \$236,451
Prin Invest NASA Tech Officer CASE Category
Covert, E. E. LARC/Boyden, R. P. 41-Aero Engr
Haldeman, C. W. LARC/Kilgore, R. A.

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NSG 1504 **Massachusetts Institute of Technology** **2772**
Teflon fibril toughening of glassy polymers
Period *Obligations*
02/01/78-06/30/81 FY80: \$39,631 TOTAL: \$84,200
Prin Invest *NASA Tech Officer* *CASE Category*
McGarry, F. J. LARC/Price, H. L. 47-Materials Engr
Mandel, J. F. LARC/Sykes, G. F.

NSG 1551 **Massachusetts Institute of Technology** **2773**
Research on atomic hydrogen at cryogenic temperatures, with application to a hydrogen maser frequency standard
Period *Obligations*
10/01/78-06/30/80 FY80: \$35,000 TOTAL: \$85,000
Prin Invest *NASA Tech Officer* *CASE Category*
Greytak, T. J. LARC/Singh, J. J. 13-Physics
Kleppner, D.

NSG 1583 **Massachusetts Institute of Technology** **2774**
Research on helicopter rotor broadband noise
Period *Obligations*
12/01/78-11/30/80 FY80: \$54,301 TOTAL: \$104,108
Prin Invest *NASA Tech Officer* *CASE Category*
Harris, W. L. LARC/Greene, G. C. 13-Physics
Ingard, K. U. LARC/Brooks, T. F.

NSG 2010 **Massachusetts Institute of Technology** **2775**
Study of impact on space shuttle on stratospheric ozone
Period *Obligations*
03/01/74-01/31/81 FY80: \$250,000 TOTAL: \$1,356,260
Prin Invest *NASA Tech Officer* *CASE Category*
Prinn, R. G. ARC/Whitten, R. C. 31-Atmos Sc.
ARC/Young, R. F.

NSG 2032 **Massachusetts Institute of Technology** **2776**
Research on habituation to novel visual-vestibular environments with particular reference to space flight
Period *Obligations*
07/01/74-01/15/81 FY80: \$66,900 TOTAL: \$487,903
Prin Invest *NASA Tech Officer* *CASE Category*
Young, I. R. ARC/Dauntun, N. G. 59-Life Sci, NEC
Oman, C. M.

NSG 2118 **Massachusetts Institute of Technology** **2777**
Experimentation in supervisory controls flight management
Period *Obligations*
11/01/75-11/30/80 FY80: \$18,305 TOTAL: \$244,515
Prin Invest *NASA Tech Officer* *CASE Category*
Sheridan, T. B. ARC/Wempe, T. F. 99-Multi-Discip

NSG 2142 **Massachusetts Institute of Technology** **2778**
Helicopter rotor noise
Period *Obligations*
07/01/76-11/01/80 FY80: TOTAL: \$187,973
Prin Invest *NASA Tech Officer* *CASE Category*
Widnall, S. F. ARC/Johnson, W. R. 41-Aero Engr

NSG 2263 **Massachusetts Institute of Technology** **2779**
Far infrared observations of optical regions
Period *Obligations*
10/01/77-11/30/80 FY80: TOTAL: \$25,660
Prin Invest *NASA Tech Officer* *CASE Category*
Wright, E. L. ARC/Haughney, L. C. 11-Astronomy

NSG 2266 **Massachusetts Institute of Technology** **2780**
An investigation of advanced helicopter rotors having individual-blade-control
Period *Obligations*
11/01/77-10/31/80 FY80: TOTAL: \$299,821
Prin Invest *NASA Tech Officer* *CASE Category*
Ham, N. D. ARC/Johnson, W. R. 41-Aero Engr
ARC/McCloud, J. L.

NSG 2342 **Massachusetts Institute of Technology** **2781**
Opportunity observations of occultations and eclipses
Period *Obligations*
11/01/78-10/31/80 FY80: TOTAL: \$66,755
Prin Invest *NASA Tech Officer* *CASE Category*
Elliot, J. L. ARC/Haughney, L. C. 11-Astronomy

NSG 2403 **Massachusetts Institute of Technology** **2782**
Development of a prototype experiment for treating wastes to nutrients for plant growth
Period *Obligations*
09/01/79-11/30/80 FY80: \$235,000 TOTAL: \$325,000
Prin Invest *NASA Tech Officer* *CASE Category*
Modell, M. ARC/Quattrone, P. D. 59-Life Sci, NEC

NSG 3017 **Massachusetts Institute of Technology** **2783**
Silicon surface phenomena related to energy conversion
Period *Obligations*
05/01/74-02/21/81 FY80: \$59,500 TOTAL: \$260,600
Prin Invest *NASA Tech Officer* *CASE Category*
Gatos, H. C. LERC/Weinberg, I. 47-Materials Engr
LERC/Brandhorst, H. W., Jr.

NSG 3044 **Massachusetts Institute of Technology** **2784**
Special finite elements for the analysis of flaw growth and fracture in fiber composites
Period *Obligations*
02/01/75-09/30/80 FY80: TOTAL: \$249,195
Prin Invest *NASA Tech Officer* *CASE Category*
McGarry, F. J. LERC/Chamis, C. C. 49-Engr, NEC

NSG 3046 **Massachusetts Institute of Technology** **2785**
Directional solidification of gamma/gamma prime-delta in situ composites
Period *Obligations*
06/30/75-09/30/79 FY80: TOTAL: \$194,435
Prin Invest *NASA Tech Officer* *CASE Category*
Flemings, M. C. LERC/Scheuermann, C. M. 47-Materials Engr

NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)

NSG 3076 **Massachusetts Institute of Technology** **2786**
Effects of fuel composition on soot formation in combustors
Period *Obligations*
09/01/75-09/30/79 FY80: **TOTAL: \$219,161**
Prin Invest *NASA Tech Officer* *CASE Category*
Hoult, D. P. LERC/Brabbs, T. A. 41-Aero Engr
Rife, J. M.

NSG 3079 **Massachusetts Institute of Technology** **2787**
Development of techniques for turbomachinery flutter clearance
Period *Obligations*
07/15/75-03/16/81 FY80: \$36,188 **TOTAL: \$276,121**
Prin Invest *NASA Tech Officer* *CASE Category*
Kerrebrock, J. L. LERC/Adamczyk, J. J. 41-Aero Engr

NSG 3175 **Massachusetts Institute of Technology** **2788**
Development of electromagnetic mass drivers
Period *Obligations*
12/01/77-01/31/81 FY80: \$75,000 **TOTAL: \$156,510**
Prin Invest *NASA Tech Officer* *CASE Category*
Kolm, H. H. LERC/Kramer, E. H. 42-Astro Engr

NSG 3187 **Massachusetts Institute of Technology** **2789**
Theoretical and experimental study of the shear layer between two swirling streams
Period *Obligations*
04/01/78-09/01/80 FY80: **TOTAL \$80,347**
Prin Invest *NASA Tech Officer* *CASE Category*
Kerrebrock, J. L. LERC/Braun, W. H. 49-Engr, NEC

NSG 3208 **Massachusetts Institute of Technology** **2790**
Strut induced aerodynamic forcing functions
Period *Obligations*
07/05/78-09/30/80 FY80: **TOTAL: \$70,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Greitzer, F. M. LERC/Adamczyk, J. J. 41-Aero Engr

NSG 3210 **Massachusetts Institute of Technology** **2791**
Wave propagation in fiber composites relating to acoustic-ultrasonic NDE techniques
Period *Obligations*
08/01/78-11/30/80 FY80: \$30,000 **TOTAL: \$89,905**
Prin Invest *NASA Tech Officer* *CASE Category*
Williams, J. H., Jr LERC/Vary, A. 47-Materials Engr

NSG 3234 **Massachusetts Institute of Technology** **2792**
Transonic compressors viscous flow
Period *Obligations*
12/15/78-01/31/80 FY80: **TOTAL \$74,050**
Prin Invest *NASA Tech Officer* *CASE Category*
Kerrebrock, J. L. LERC/Chima, R. 41-Aero Engr
Thompkins, W. T
Epstein, A. H.

NSG 3245 **Massachusetts Institute of Technology** **2793**
Combustion and operating characteristics of spark-ignition engines
Period *Obligations*
01/15/79-01/14/80 FY80: **TOTAL: \$49,984**
Prin Invest *NASA Tech Officer* *CASE Category*
Heywood, J. B. LERC/Cassidy, J. F. 46-Mech Engr
LERC/Kempke, E. E.

NSG 3286 **Massachusetts Institute of Technology** **2794**
Viscous flow and crystallization behavior of hydrocarbon mixtures
Period *Obligations*
08/02/79-08/30/81 FY80: \$53,727 **TOTAL \$102,703**
Prin Invest *NASA Tech Officer* *CASE Category*
Uhlmann, D. R. LERC/Antoine, A. C. 12-Chemistry

NSG 3303 **Massachusetts Institute of Technology** **2795**
Development of a methodology for horizontal axis wind turbine dynamic analysis
Period *Obligations*
08/15/79-08/13/81 FY80: \$69,994 **TOTAL: \$135,896**
Prin Invest *NASA Tech Officer* *CASE Category*
Dugundji, J. LERC/Janczke, D. C. 41-Aero Engr
LERC/Spera, D. A.

NSG 3309 **Massachusetts Institute of Technology** **2796**
Application of array processors and specialized computers to numerical fluid mechanics
Period *Obligations*
10/01/79-09/30/80 FY80: \$25,602 **TOTAL: \$25,602**
Prin Invest *NASA Tech Officer* *CASE Category*
Thompkins, W. T LERC/Bishop, A. R. 41-Aero Engr
LERC/Anderson, B. A.

NSG 5076 **Massachusetts Institute of Technology** **2797**
Numerical study of the atmospheric circulation of Venus
Period *Obligations*
08/17/75-05/31/80 FY80: **TOTAL \$127,700**
Prin Invest *NASA Tech Officer* *CASE Category*
Rivas, F. K. GSFC/Hansen, J. E. 11-Astronomy
Stone, P. H.

NSG 5113 **Massachusetts Institute of Technology** **2798**
Research in stratospheric dynamics
Period *Obligations*
07/01/76-06/30/81 FY80: \$73,000 **TOTAL: \$249,903**
Prin Invest *NASA Tech Officer* *CASE Category*
Stone, P. H. GSFC/Hansen, J. E. 31-Atmos Sci

NSG 5166 **Massachusetts Institute of Technology** **2799**
Theoretical and numerical study of climate and climate change
Period *Obligations*
03/21/77-12/20/82 FY80: **TOTAL: \$243,986**
Prin Invest *NASA Tech Officer* *CASE Category*
Charney, J. G. GSFC/Halem, M. 31-Atmos Sci
Stone, P. H.

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NSG 5253 **Massachusetts Institute of Technology** **2800**
Research of gravity field over the Indian Ocean
Period *Obligations*
03/15/78-10/31/79 **FY80:** **TOTAL: \$50,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Slater, J. G. GSFC/Smith, D. E. 32-Geological Sci
Munsch, C.

NSG 5260 **Massachusetts Institute of Technology** **2801**
Geophysical study of the structure and processes of the continental convergence zones
Period *Obligations*
04/01/78-04/30/79 **FY80:** **TOTAL: \$40,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Molnar, P. GSFC/Frey, H. V. 32-Geological Sci
Toksoz, M. N. GSFC/Mead, G. D.

NSG 5306 **Massachusetts Institute of Technology** **2802**
Inference of effective soil properties from observed vegetal canopy density
Period *Obligations*
11/15/78-03/31/80 **FY80:** **TOTAL: \$40,023**
Prin Invest *NASA Tech Officer* *CASE Category*
Eagleson, P. S. GSFC/Halem, M. 32-Geological Sci

NSG 7010 **Massachusetts Institute of Technology** **2803**
Precision selenodesy and lunar libration through very long baseline interferometry: Observation of ALSEPS
Period *Obligations*
01/01/74-12/31/79 **FY80:** **TOTAL: \$355,500**
Prin Invest *NASA Tech Officer* *CASE Category*
Counselman, C. C. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NSG 7081 **Massachusetts Institute of Technology** **2804**
Models of the composition, structure and evolution of the lunar interior
Period *Obligations*
06/01/74-02/28/81 **FY80: \$145,000** **TOTAL: \$1,044,960**
Prin Invest *NASA Tech Officer* *CASE Category*
Toksoz, M. N. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NSG 7186 **Massachusetts Institute of Technology** **2805**
An observatory search for and study of new IR sources reported in the AFRL catalogue
Period *Obligations*
12/01/75-01/31/81 **FY80: \$27,531** **TOTAL: \$154,414**
Prin Invest *NASA Tech Officer* *CASE Category*
Kleinmann, S. HD-SC/Bogges, N. W. 11-Astronomy
HD-SC/Weiler, E. J.

NSG 7297 **Massachusetts Institute of Technology** **2806**
Studies of stress history of terrestrial lithospheres
Period *Obligations*
01/01/77-12/31/80 **FY80: \$48,500** **TOTAL: \$120,500**
Prin Invest *NASA Tech Officer* *CASE Category*
Solomon, S. C. HD-SL/Dwornik, S.E. 32-Geological Sci
HD-SL/Boyce, J. M.

NSG 7328 **Massachusetts Institute of Technology** **2807**
Research on integrated silicon balometers
Period *Obligations*
03/01/77-11/30/80 **FY80: \$13,460** **TOTAL: \$181,960**
Prin Invest *NASA Tech Officer* *CASE Category*
Weiss, R. HD-SC/Bogges, N. W. 11-Astronomy
HD-SC/Weiler, E. J.

NSG 7329 **Massachusetts Institute of Technology** **2808**
Application of lunar laser ranging data to a study of plate tectonic driving forces
Period *Obligations*
04/01/78-02/31/80 **FY80:** **TOTAL: \$125,820**
Prin Invest *NASA Tech Officer* *CASE Category*
Solomon, S. C. HD-ES/Flinn, E. A. 32-Geological Sci
Toksoz, M. N. HD-SL/Quaide, W. L.

NSG 7331 **Massachusetts Institute of Technology** **2809**
Crystal growth of device quality gallium arsenite in space
Period *Obligations*
04/01/79-03/31/83 **FY80:** **TOTAL: \$1,200,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Gatos, H. C. HD-ET/Vitale, J. A. 47-Materials Engr

NSG 7338 **Massachusetts Institute of Technology** **2810**
Temperature dependencies of electronic transition energies of healed lunar materials
Period *Obligations*
03/01/77-09/30/78 **FY80:** **TOTAL: \$40,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Burns, R. G. HD-SL/Quaide, W. L. 32-Geological Sci

NSG 7339 **Massachusetts Institute of Technology** **2811**
X-ray balloon observations from the Northern and Southern Hemispheres
Period *Obligations*
04/01/77-01/31/81 **FY80: \$125,000** **TOTAL: \$415,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Lewin, W. H. HD-SC/Gilman, D. A. 11-Astronomy
HD-SC/Opp, A. G.

NSG 7396 **Massachusetts Institute of Technology** **2812**
Payloads for space
Period *Obligations*
09/12/77-10/31/78 **FY80:** **TOTAL: \$174,147**
Prin Invest *NASA Tech Officer* *CASE Category*
Mar, J. W. HD-RT/Schwenk, F. 42-Astro Engr
HD-RR/Henry, W.

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NSG 7428 **Massachusetts Institute of Technology** **2813**
Analysis of lunar ranging data for Earth dynamics applications
Period *Obligations*
04/01/79-01/31/80 **FY80:** **TOTAL: \$60,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Counselman, C. C. HD-ER/Flinn, E. A. 32-Geological Sci
Shapiro, I. I.
King, R. W.

NSG 7467 **Massachusetts Institute of Technology** **2814**
Field studies of possible impact craters in Ontario
Period *Obligations*
06/15/78-06/14/79 **FY80:** **TOTAL: \$17,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Pinson, W. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/Dwornik, S. A.

NSG 7526 **Massachusetts Institute of Technology** **2815**
Portable high-speed photometry systems for observing occultations
Period *Obligations*
01/01/79-12/31/80 **FY80: \$53,342** **TOTAL: \$119,432**
Prin Invest *NASA Tech Officer* *CASE Category*
Elliot, J. L. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Murphy, R. E.

NSG 7556 **Massachusetts Institute of Technology** **2816**
Viking radio science data analysis and synthesis
Period *Obligations*
03/01/79-09/30/80 **FY80: \$142,450** **TOTAL: \$222,450**
Prin Invest *NASA Tech Officer* *CASE Category*
Shapiro, I. I. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Murphy, R. E.

NSG 7604 **Massachusetts Institute of Technology** **2817**
Electronic spectra of heated lunar materials: Quantifying remote sensed spectra of hot planetary surfaces
Period *Obligations*
05/01/79-01/31/81 **FY80: \$88,477** **TOTAL: \$148,987**
Prin Invest *NASA Tech Officer* *CASE Category*
Burns, R. G. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NSG 7638 **Massachusetts Institute of Technology** **2818**
Mars orbiter and comet mission
Period *Obligations*
04/15/79-03/31/81 **FY80: \$140,000** **TOTAL: \$280,000**
Prin Invest *NASA Tech Officer* *CASE Category*
McCord, T. B. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NSG 7643 **Massachusetts Institute of Technology** **2819**
Experimental and theoretical investigations in high energy astrophysics
Period *Obligations*
01/01/79-12/31/81 **FY80: \$159,666** **TOTAL: \$159,666**
Prin Invest *NASA Tech Officer* *CASE Category*
Clark, G. HD-SC/Kaluzienski, L. J. 11-Astronomy
HD-SC/Opp, A. G.

NSG 7645 **Massachusetts Institute of Technology** **2820**
Materials processing research base for the materials processing
Period *Obligations*
10/01/79-09/30/82 **FY80: \$821,520** **TOTAL: \$821,520**
Prin Invest *NASA Tech Officer* *CASE Category*
Szekely, J. HD-ET/Vitale, J. A. 47-Materials Engr
Flemings, M. C.
Witt, A.

NAG 2-51 **Tufts University** **2821**
The human factors of avionic computers
Period *Obligations*
09/01/80-08/31/81 **FY80: \$33,944** **TOTAL: \$33,944**
Prin Invest *NASA Tech Officer* *CASE Category*
Chechile, R. A. ARC/Palmer, E. A. 69-Psych, NEC
ARC/Wempe, T. E.

NCC 2-93 **Tufts University** **2822**
Simulator fidelity and numerosity effects in CDTI experimentation
Period *Obligations*
09/01/80-12/31/80 **FY80: \$56,000** **TOTAL: \$56,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Kreifeldt, J. G. ARC/Wempe, T. E. 99-Multi-Discip

NSG 1295 **University of Lowell** **2823**
Structural response and input identification
Period *Obligations*
04/01/76-01/31/81 **FY80: \$16,760** **TOTAL: \$105,587**
Prin Invest *NASA Tech Officer* *CASE Category*
Lamont, P. J. LARC/Card, M. F. 41-Aero Engr
LARC/Fralich, R. W.

NAG 1-54 **University of Massachusetts - Amherst** **2824**
Remote sensing of ocean surface and ice conditions using microwaves
Period *Obligations*
09/01/80-08/31/81 **FY80: \$50,125** **TOTAL: \$50,125**
Prin Invest *NASA Tech Officer* *CASE Category*
McIntosh, R. LARC/Swift, C. T. 45-Elec Engr

NAGW 40 **University of Massachusetts - Amherst** **2825**
Mars: Mineralogy of the surface materials
Period *Obligations*
01/01/80-12/31/80 **FY80: \$40,000** **TOTAL: \$40,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Huguenin, R. L. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/Boyce, J. M.

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAS 2-9129 University of Massachusetts - Amherst 2826
Interdisciplinary scientist and radar team member

Period	Obligations	
01/22/76-01/31/81	FY80:	TOTAL: \$68,456
Prin Invest	NASA Tech Officer	CASE Category
McGill, G. E.	ARC/Fimmel, R. O.	11-Astronomy
	ARC/Dyer, J.	

NAS 5-26151 University of Massachusetts - Amherst 2827
Plan and establish the preliminary interface between the orbiter and the mixer receiver system

Period	Obligations	
05/05/80-05/04/81	FY80: \$180,498	TOTAL: \$180,498
Prin Invest	NASA Tech Officer	CASE Category
Yngvesson, K. S.	GSFC/Fiband, A. M.	11-Astronomy

NCC 3-10 University of Massachusetts - Amherst 2828
Tribology assessment

Period	Obligations	
05/19/80-05/18/81	FY80: \$21,000	TOTAL: \$21,000
Prin Invest	NASA Tech Officer	CASE Category
Wilson, W. R.	LERC/Wedeven, L. D.	46-Mech Engr

NGL 22-010-023 University of Massachusetts - Amherst 2829
Theoretical studies of diffuse reflection and transmission of radiation in planetary atmospheres

Period	Obligations	
05/24/67-08/31/81	FY80: \$39,828	TOTAL: \$596,757
Prin Invest	NASA Tech Officer	CASE Category
Irvine, W. M.	HD-SL/Brunk, W. F.	11-Astronomy
	HD-SL/Murphy, R. F.	

NGL 22-010-089 University of Massachusetts - Amherst 2830
Lunar sample analysis

Period	Obligations	
03/16/71-09/30/79	FY80:	TOTAL: \$191,875
Prin Invest	NASA Tech Officer	CASE Category
Haggerty, S. E.	JSC/Harris, J. W.	13-Physics

NGR 22-010-076 University of Massachusetts - Amherst 2831
Reconnaissance study of large geologic ring structures on Mars

Period	Obligations	
05/19/70-01/31/81	FY80: \$43,100	TOTAL: \$305,775
Prin Invest	NASA Tech Officer	CASE Category
McGill, G. E.	HD-SL/Boyce, J. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	

NSG 7397 University of Massachusetts - Amherst 2832
Surface chemistry and the search for life on Mars

Period	Obligations	
10/01/77-09/30/81	FY80: \$43,112	TOTAL: \$107,993
Prin Invest	NASA Tech Officer	CASE Category
Huguenin, R. L.	HD-SL/Guastaferrro, A.	12-Chemistry
	HD-SB/Devincenzi, D. L.	

NSG 7405 University of Massachusetts - Amherst 2833
Mineralogy and weathering processes on Mars

Period	Obligations	
10/01/77-09/30/80	FY80: \$30,000	TOTAL: \$94,868
Prin Invest	NASA Tech Officer	CASE Category
Huguenin, R. L.	HD-SL/Boyce, J. M.	32-Geological Sci

NSG 7549 University of Massachusetts - Amherst 2834
The opaque mineral chemistry of allende, basaltic achondrites, and the Antarctic meteorite suite

Period	Obligations	
05/01/79-01/31/81	FY80: \$51,082	TOTAL: \$92,182
Prin Invest	NASA Tech Officer	CASE Category
Haggerty, S. E.	HD-SL/French, B. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	

NSG 7571 University of Massachusetts - Amherst 2835
Structural evolution and stress history of the Tharsis region of Mars

Period	Obligations	
05/01/79-04/30/80	FY80:	TOTAL: \$23,460
Prin Invest	NASA Tech Officer	CASE Category
Wise, D.	HD-SL/Dwornik, S. E.	32-Geological Sci
	HD-SL/Boyce, J. M.	

NSG 9069 University of Massachusetts - Amherst 2836
Comparative geochemical and petrological study of lunar and terrestrial basaltic volcanism

Period	Obligations	
05/15/78-01/31/81	FY80: \$28,000	TOTAL: \$77,091
Prin Invest	NASA Tech Officer	CASE Category
Rhodes, J. M.	JSC/Harris, J. W.	32-Geological Sci

NSG 5376 Wheaton College 2837
Ultraviolet spectrophotometry of planetary nebulae

Period	Obligations	
07/01/79-06/30/81	FY80:	TOTAL: \$6,100
Prin Invest	NASA Tech Officer	CASE Category
Barker, T.	GSFC/Bogges, A.	11-Astronomy

NSG 5218 Williams College 2838
Effects of hydrogen atom spin exchange collisions on atomic hydrogen maser oscillation frequency

Period	Obligations	
12/01/77-11/30/79	FY80:	TOTAL: \$23,700
Prin Invest	NASA Tech Officer	CASE Category
Crampton, S. B.	GSFC/Reinhardt, V. S.	13-Physics

NAG 1-91 Woods Hole Oceanographic Institution 2839
Acoustic profiling of ocean currents

Period	Obligations	
07/15/80-11/14/80	FY80: \$50,000	TOTAL: \$50,000
Prin Invest	NASA Tech Officer	CASE Category
Joyce, T. M.	LARC/Croswell, W. F.	33-Oceanography
	LARC/Jones, W. L.	

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAG 5-8 Woods Hole Oceanographic Institution 2840
Oceanic eddy heat and momentum fluxes at the continental margin

Period	Obligations	
02/01/80-01/31/81	FY80: \$9,602	TOTAL: \$9,602
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Haidvogel, D. B.	GSFC/Halem, M.	33-Oceanography

NAG 5-18 Woods Hole Oceanographic Institution 2841
Upper mantle heterogeneity: Comparison of region south of Australia with the Philippine Basin

Period	Obligations	
03/01/80-02/28/81	FY80: \$41,659	TOTAL: \$41,659
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Brown, C.	GSFC/Patterson, G.C.	32-Geological Sci
	GSFC/Marsh, J. G.	

NSG 3137 Worcester Polytechnic Institute 2842
Investigation of the 1.15 micron photoconductive response of silicon devices

Period	Obligations	
02/01/77-10/31/80	FY80:	TOTAL: \$87,361
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lanyon, H. P.	LERC/Godlewski, M. P.	45-Elec Engr

NSG 7154 Worcester Polytechnic Institute 2843
Mission-oriented studies of planetary biology

Period	Obligations	
10/01/75-09/30/80	FY80: \$100,000	TOTAL: \$536,390
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Danielli, J. F.	HD-SB/Young, R. S.	51-Biological Sci

NSG 7392 Worcester Polytechnic Institute 2844
Martian chemistry relevant to biological activity and the Viking labeled release experiments

Period	Obligations	
12/15/77-09/30/80	FY80: \$51,209	TOTAL: \$119,232
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
F umb, R. C.	HD-SB/Devincenzi, D. L.	12-Chemistry

MICHIGAN

NAG 3-51 Michigan State University 2845
Experimental evaluation criteria for constitutive models of time-dependents cyclic plasticity

Period	Obligations	
06/02/80-06/01/81	FY80: \$43,932	TOTAL: \$43,932
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Martin, J. F.	LERC/Halford, G. R.	47-Materials Engr
	LERC/Hirschberg, M. H.	

NAG 3-93 Michigan State University 2846
A miniature nanosecond spark detector for liquid chromatographic analysis of crude oils and fuels

Period	Obligations	
09/15/80-09/14/81	FY80: \$34,958	TOTAL: \$34,958
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Crouch, S. R.	LERC/Seng, G. T.	12-Chemistry

NAG 3-107 Michigan State University 2847
Development and application of triple quadrupole mass spectrometry for jet fuel characterization

Period	Obligations	
10/13/80-10/12/81	FY80: \$55,251	TOTAL: \$55,251
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Enke, C. G.	LERC/Seng, G. T.	12-Chemistry

NAGW 97 Michigan State University 2848
An attempt to localize and identify the gravity sensing mechanism of plants

Period	Obligations	
08/01/80-07/31/81	FY80: \$65,266	TOTAL: \$65,266
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bandurski, R. S.	HD-SB/Halstead, T.W.	51-Biological Sci

NGI 23-004-083 Michigan State University 2849
Use of remote sensing for land use policy formulation

Period	Obligations	
06/08/72-05/31/83	FY80: \$110,000	TOTAL: \$1,100,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Boylan, M. G.	HD-ET/Vitale, J. A.	35 Env Sci, NEC

NSG 3299 Michigan State University 2850
Generation of free radicals and ions for spacecraft propulsion

Period	Obligations	
08/15/79-11/13/81	FY80: \$77,469	TOTAL: \$156,229
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Asmussen, J.	LERC/Nakanishi, S.	19-Phys Sci, NEC
Hawley, M. C.		
Kerber, R. L.		

NSG 7293 Michigan State University 2851
Radiative fluid dynamic studies of the Sun and compact H-II regions

Period	Obligations	
10/01/76-11/30/80	FY80: \$17,000	TOTAL: \$59,270
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stein, R. F.	HD-ST/Chipman, E.	13-Physics

NAG 8-33727 Michigan Technological University 2852
Materials processing in space experiment. The influence of gravity on the solidification of monotectic alloys

Period	Obligations	
09/01/80-08/31/83	FY80: \$47,000	TOTAL: \$47,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hellawell, A.	MSFC/Moore, W. W.	19-Phys Sci, NEC

NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)

NSG 3215 **Michigan Technological University** **2853**
 Diffusion modeling of cyclic oxidation transport processes in Ni-base alloys
Period *Obligations*
 08/01/78-07/30/81 FY80: \$35,520 TOTAL: \$91,381
Prin Invest *NASA Tech Officer* *CASE Category*
 Heckel, R. W. LERC/Barrett, C. A. 47-Materials Engr
 LERC/Lowell, C. E.

NAG 8-341 **University of Michigan - Ann Arbor** **2859**
 Search for X-rays from the Shakkbazyan I group of galaxies and search for X-rays from the supernova remnants in NCG 4449
Period *Obligations*
 03/01/80-07/31/81 FY80: \$13,896 TOTAL: \$13,896
Prin Invest *NASA Tech Officer* *CASE Category*
 Kirshner, R. MSFC/Jones, J. B. 11-Astronomy
 Winkler, P. F.

NAG 1-67 **University of Michigan - Ann Arbor** **2854**
 Time variable Earth radiation balance models and interpretation of satellite radiation budget measurements
Period *Obligations*
 06/01/80-06/30/81 FY80: \$13,026 TOTAL: \$13,026
Prin Invest *NASA Tech Officer* *CASE Category*
 Bartman, F. L. LARC/Smith, G. L. 31-Atmos Sci
 LARC/Raper, J. L.

NAGW 15 **University of Michigan - Ann Arbor** **2860**
 Study in planetary aeronomy
Period *Obligations*
 12/01/79-11/30/80 FY80: \$27,500 TOTAL: \$27,500
Prin Invest *NASA Tech Officer* *CASE Category*
 Cravens, T. E. HD-SL/Murphy, R. E. 31-Atmos Sci
 Nagy, A. F. HD-SL/Brunk, W. E.

NAG 1-86 **University of Michigan - Ann Arbor** **2855**
 Effectiveness of nonaerodynamics controls during entry of a single state-to-orbit vehicle
Period *Obligations*
 07/01/80-06/30/81 FY80: \$32,339 TOTAL: \$32,339
Prin Invest *NASA Tech Officer* *CASE Category*
 Vinh, N. X. LARC/Powell, R. W. 41-Aero Engr
 LARC/Shoosmith, J. N.

NAGW 29 **University of Michigan - Ann Arbor** **2861**
 A ground based comparative study of the effects of weightlessness on the development of amphibian eggs
Period *Obligations*
 12/15/79-12/14/80 FY80: \$60,000 TOTAL: \$60,000
Prin Invest *NASA Tech Officer* *CASE Category*
 Nace, G. W. HD-SB/Halstead, T. W. 51-Biological Sci
 Richards, C. M.

NAG 1-93 **University of Michigan - Ann Arbor** **2856**
 Halogen occultation experiment
Period *Obligations*
 07/17/80-04/16/81 FY80: \$25,087 TOTAL: \$25,087
Prin Invest *NASA Tech Officer* *CASE Category*
 Davidson, S. R. LARC/Sullivan, E. M. 31-Atmos Sci
 LARC/Russell, J. M.

NAGW 32 **University of Michigan - Ann Arbor** **2862**
 Horizontal mapping of the thermal structures of the mesosphere at 85 and 97 kilometers
Period *Obligations*
 02/01/80-01/31/81 FY80: \$38,204 TOTAL: \$38,204
Prin Invest *NASA Tech Officer* *CASE Category*
 Meriwether, J. W. HD-EB/Toth, R. A. 31-Atmos Sci
 HD-EB/Seals, R. K.

NAG 5-109 **University of Michigan - Ann Arbor** **2857**
 Doppler line profile measurement of the Jovian Lyman alpha emission
Period *Obligations*
 10/01/80-09/30/81 FY80: \$7,000 TOTAL: \$7,000
Prin Invest *NASA Tech Officer* *CASE Category*
 Atreya, S. K. GSFC/Corrigan, J. P. 11-Astronomy

NAGW 34 **University of Michigan - Ann Arbor** **2863**
 Investigation of the negative geotropic response in geosensitive pulvini of the oat plant (Avena sativa)
Period *Obligations*
 02/01/80-01/31/81 FY80: \$42,500 TOTAL: \$42,500
Prin Invest *NASA Tech Officer* *CASE Category*
 Kaufman, P. B. HD-SB/Halstead, T. W. 51-Biological Sci

NAG 8-318 **University of Michigan - Ann Arbor** **2858**
 An X-ray study of Am Canum Venaticorum (A star)
Period *Obligations*
 03/17/80-03/16/81 FY80: \$800 TOTAL: \$800
Prin Invest *NASA Tech Officer* *CASE Category*
 Patterson, J. MSFC/Jones, J. B. 11-Astronomy
 Robinson, E. L.
 Nather, R. E.

NAS 1-14394 **University of Michigan - Ann Arbor** **2864**
 Science support for the limb infrared monitor of the stratosphere experiment
Period *Obligations*
 04/09/76-10/31/80 FY80: TOTAL: \$110,509
Prin Invest *NASA Tech Officer* *CASE Category*
 Drayson, S. R. LARC/Russell, J. M., III 31-Atmos Sci
 LARC/James, R. L., Jr.

**NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)**

NAS 1-15333 University of Michigan - Ann Arbor 2865
High-toughness graphite/epoxy composite material experiment for the Long Duration Exposure Facility (LDEF)
Period *Obligations*
03/31/78-05/29/80 FY80: TOTAL: \$30,000
Prin Invest *NASA Tech Officer* *CASE Category*
Felbeck, D. K. LARC/Jones, J. L. 47-Materials Engr
Durant, W. H.

NAS 1-16107 University of Michigan - Ann Arbor 2866
Sampling errors for regression statistics from complex sample designs
Period *Obligations*
05/16/80-02/15/81 FY80: \$7,607 TOTAL: \$7,607
Prin Invest *NASA Tech Officer* *CASE Category*
Kalton, G. LARC/Clevenson, S. 79-Soc Sci, NEC
Vinter, S.

NAS 2-9126 University of Michigan - Ann Arbor 2867
Interdisciplinary scientist, Pioneer Venus program
Period *Obligations*
02/10/76-09/30/80 FY80: \$29,435 TOTAL: \$270,063
Prin Invest *NASA Tech Officer* *CASE Category*
Donahue, T. M. ARC/Hall, C. F. 11-Astronomy
ARC/Porter, D. L.

NAS 2-9130 University of Michigan - Ann Arbor 2868
Interdisciplinary scientist, Pioneer Venus program
Period *Obligations*
02/09/76-09/30/80 FY80: \$27,369 TOTAL: \$202,680
Prin Invest *NASA Tech Officer* *CASE Category*
Nagy, A. F. ARC/Hall, C. F. 11-Astronomy
ARC/Porter, D. L.

NAS 2-10534 University of Michigan - Ann Arbor 2869
Febrile responses during spaceflight
Period *Obligations*
01/17/80-04/30/81 FY80: \$26,712 TOTAL: \$26,712
Prin Invest *NASA Tech Officer* *CASE Category*
Kluger, M. J. ARC/Ferandin, J. 51-Biological Sci
ARC/Martens, J.

NAS 2-10535 University of Michigan - Ann Arbor 2870
Study of effects of space travel on mammalian gravity receptors
Period *Obligations*
01/17/80-12/31/80 FY80: \$24,456 TOTAL: \$24,456
Prin Invest *NASA Tech Officer* *CASE Category*
Ross, M. ARC/Ferandin, J. 51-Biological Sci
ARC/Polson, P.

NAS 5-11376 University of Michigan - Ann Arbor 2871
AE-C, D, and E Pelz experiment
Period *Obligations*
01/07/71-11/29/80 FY80: \$40,000 TOTAL: \$1,158,933
Prin Invest *NASA Tech Officer* *CASE Category*
Carignan, G. R. GSFC/Hedin, A. E. 31-Atmos Sci
GSFC/Spencer, N. W.

NAS 5-11380 University of Michigan - Ann Arbor 2872
AE-C, D, and E neutral temperature experiment
Period *Obligations*
02/03/71-09/30/80 FY80: \$38,096 TOTAL: \$1,127,416
Prin Invest *NASA Tech Officer* *CASE Category*
Carignan, G. R. GSFC/Spencer, N. W. 31-Atmos Sci

NAS 5-23006 University of Michigan - Ann Arbor 2873
Atmosphere Explorer visual airglow photometer
Period *Obligations*
08/24/71-03/31/81 FY80: \$195,486 TOTAL: \$1,847,664
Prin Invest *NASA Tech Officer* *CASE Category*
Hays, P. B. GSFC/Rice, C. 31-Atmos Sci
Carignan, G. R.

NAS 5-24295 University of Michigan - Ann Arbor 2874
Neutral atmosphere composition experiment for the Dynamic Explorer
Period *Obligations*
07/26/77-08/31/81 FY80: \$234,494 TOTAL: \$695,739
Prin Invest *NASA Tech Officer* *CASE Category*
Carignan, G. R. GSFC/Fellerman, K. D. 13-Physics

NAS 5-24296 University of Michigan - Ann Arbor 2875
Fabry-Perot interferometer for the Dynamic Explorer
Period *Obligations*
07/26/77-08/31/81 FY80: \$572,000 TOTAL: \$1,523,576
Prin Invest *NASA Tech Officer* *CASE Category*
Hays, P. B. GSFC/Fellerman, K. D. 13-Physics

NAS 5-24331 University of Michigan - Ann Arbor 2876
Theoretical investigation to identify and develop specific aeronomic studies and problems adaptable to the AE satellite
Period *Obligations*
12/01/77-09/30/81 FY80: \$90,000 TOTAL: \$271,000
Prin Invest *NASA Tech Officer* *CASE Category*
Walker, J. GSFC/Bullock, G. D. 31-Atmos Sci

NAS 5-25002 University of Michigan - Ann Arbor 2877
Wind and temperature spectrometer for the Dynamic Explorer spacecraft
Period *Obligations*
03/30/78-07/31/81 FY80: \$148,000 TOTAL: \$529,903
Prin Invest *NASA Tech Officer* *CASE Category*
Carignan, G. R. GSFC/Spencer, N. W. 31-Atmos Sci

NAS 5-25031 University of Michigan - Ann Arbor 2878
Develop, fabricate, test, and support hardware for the San Marco/wind and temperature experiment
Period *Obligations*
05/05/78-03/31/82 FY80: \$123,000 TOTAL: \$516,000
Prin Invest *NASA Tech Officer* *CASE Category*
Carignan, G. R. GSFC/Spencer, N. W. 31-Atmos Sci

NASA'S UNIVERSITY PROGRAM MICHIGAN (Continued)

NAS 5-25038	University of Michigan - Ann Arbor	2879
Theory formulation and analysis support for the Dynamic Explorer spacecraft		
<i>Period</i>	<i>Obligations</i>	
08/22/78-02/28/83	FY80: \$15,000	TOTAL: \$48,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nagy, A. F.	GSFC/Hoffman, R. A.	14-Physics
	GSFC/Smith, P. H.	

NAS 5-25145		University of Michigan - Ann Arbor	2880
Electronic system parts for Galileo probe neutral mass spectrometer			
Period	Obligations		
07/31/78-12/31/80	FY80: \$22,965	TOTAL: \$166,365	
Prin Invest	NASA Tech Officer	CASE Category	
Carignan, G. R.	GSFC/Niemann, H. B.	31-Atmos Sci	

NAS 5-25153	University of Michigan - Ann Arbor	2881
Fabrication of electronic system for the Galileo probe neutral mass spectrometer		
<i>Period</i>	<i>Obligations</i>	
08/10/78-05/10/82	FY80: \$60,000	TOTAL: \$408,200
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carignan, G. R.	GSFC/Niemann, H. B.	31-Atmos Sci
	GSFC/Way, S. H.	

NAS 5-25158	University of Michigan - Ann Arbor	2882
CMOS Radiation Effects Measurement (CREM) experiment and associated Ground Support Equipment (GSE)		
<i>Period</i>	<i>Obligations</i>	
08/16/78-03/31/83	FY80: \$116,760	TOTAL: \$343,996
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carignani, G. R.	GSFC/Haykin, D.	13-Physics
	GSFC/Cliff, R.	

NAS 5-25409	University of Michigan - Ann Arbor	2883
Protoflight Langmuir probe instrument for Dynamic Explorer		
<i>Period</i>	<i>Obligations</i>	
11/27/78-03/31/81	FY80: \$21,526	TOTAL: \$71,526
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carignan, G. R.	GSFC/Krehbiel, J. P.	13-Physics
	GSFC/Bososo, E. R.	

NAS 5-25691		University of Michigan - Ann Arbor	2884
Data analysis for Fabry-Perot-interferometer for Dynamic Explorer project			
Period	Obligation:		
02/10/80-07/31/83	FY80: \$20,000	TOTAL: \$20,000	
Prin Invest	NASA Tech Officer	CASE Category	
Hays, P. B.	GSFC/Hoffman, R. A.	41-Aero Engr	

NAS 5-25916		University of Michigan - Ann Arbor	2885
Atmosphere Explorer, Dynamic Explorer, and San Marco data software development			
Period	Obligations		
09/27/79-09/26/82	FY80: \$13,000	TOTAL: \$19,000	
Prim Invest	NASA Tech Officer	CASE Category	
Carignan, G. R.	GSFC/Spoencer, N. W.	13-Physics	

NAS 5-25939	University of Michigan - Ann Arbor	2886
Analysis of the thermal balance of the Venus ionosphere		
<i>Period</i>	<i>Obligations</i>	
10/18/79-10/17/80	FY80: \$24,400	TOTAL: \$24,400
<i>Prin. Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nagy, A. F.	GSFC/Brace, L. H.	31-Atmos Sci
Cravens, T. E.	GSFC/Theis, R. F.	

NAS 5-26069	University of Michigan - Ann Arbor	2887
NACS experiment for Dynamic Explorer project		
<i>Period</i>	<i>Obligations</i>	
02/10/80-07/31/83	FY80: \$16,000	TOTAL: \$16,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carignan, G. R.	GSFC/Hoffman, R. A.	41-Aero Engr

NAS 5-26169		University of Michigan - Ann Arbor	2888
Definition phase of the High Resolution Doppler Image (HRDI) for the Upper Atmosphere Research Satellites program (UARS)			
<i>Period</i>	<i>Obligations</i>		
09/24/80-06/30/81	FY80: \$229,225	TOTAL: \$229,225	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Hays, P. B.	GSFC/Donley, J. L.	31-Atmos Sci	

NAS 5-26189		University of Michigan - Ann Arbor	2889
Generate an investigation development plan and establish the preliminary interfaces between the orbiter and instrument for the high resolution Doppler imager			
<i>Period</i>	<i>Obligations</i>		
06/09/80-02/09/81	FY80: \$182,751	TOTAL: \$182,751	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Haves, P. B.	GSEC/Sing. M. L.	31-Atmos Sci	

NAS 6-2794	University of Michigan - Ann Arbor	2890
Design, fabricate and test five payloads		
<i>Period</i>	<i>Obligations</i>	
10/15/76-11/30/80	FY80: \$172,404	TOTAL: \$678,955
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Horvath, J. J.	WFC/Frostrom, R. J., Jr.	31-Atmos Sci
	WFC/Perry, T. W., Jr.	

NAS 8-31987	University of Michigan - Ann Arbor	2891
Mass spectrometer for induced environment contamination monitor		
<i>Period</i>	<i>Obligations</i>	
04/30/76-12/31/80	FY80:	TOTAL: \$728,651
<i>Prn Inves</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carignan, G. R.	MSFC/Ruff, R. C.	19-Phys Sci, NEC
Maurer, J. C.	MSFC/Naumann, R. J.	
Eusch, T. A.		

NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)

NAS 8-32332 University of Michigan - Ann Arbor **2892**
Retarding ion mass spectrometer on the high altitude electrodynamic Explorer

Period	Obligations
01/17/77-12/31/80	FY80: TOTAL: \$48,614
Prin Invest	NASA Tech Officer CASE Category
Carignan, G. R.	MSFC/Chappell, C. R.
	MSFC/Fields, S. A. 19-Phys Sci, NEC

NAS 8-32569 University of Michigan - Ann Arbor **2893**
Spacelab mission 1 experiment 24: An imaging spectrometric observatory for Spacelab I

Period	Obligations
04/15/77-05/31/82	FY80: \$330,208 TOTAL: \$3,242,170
Prin Invest	NASA Tech Officer CASE Category
Torr, M. R.	MSFC/Jones, C. 19-Phys Sci, NEC
	MSFC/Isa R.

NAS 8-32661 University of Michigan - Ann Arbor **2894**
Spacelab outgassing

Period	Obligations
09/20/77-01/19/81	FY80: \$25,000 TOTAL: \$145,000
Prin Invest	NASA Tech Officer CASE Category
Shyn, T. W.	MSFC/Ruff, R. C. 39-Env Sci, NEC
Tausch, D.	MSFC/Shriver, E. L.
Carignan, G. R.	

NAS 9-15244 University of Michigan - Ann Arbor **2895**
Evaluations of postural mechanisms under dynamic conditions

Period	Obligations
02/01/77-09/01/81	FY80: TOTAL: \$159,871
Prin Invest	NASA Tech Officer CASE Category
Anderson, D. J.	JSC/Homick, J. L. 56-Medical Sciences

NAS 9-15375 University of Michigan - Ann Arbor **2896**
Definition of Spacelab I experiment for adaptation of vestibulo-spinal reflex mechanisms during space flight

Period	Obligations
06/01/77-06/01/81	FY80: \$59,000 TOTAL: \$140,000
Prin Invest	NASA Tech Officer CASE Category
Anderson, D. J.	JSC/Reschke, M. F. 59-Life Sci, NEC

NCC 3-11 University of Michigan - Ann Arbor **2897**
Interdisciplinary collaboration in tribology

Period	Obligations
06/05/80-06/04/81	FY80: \$32,366 TOTAL: \$32,366
Prin Invest	NASA Tech Officer CASE Category
Ludema, K. C.	LERC/Wedeven, L. D. 46-Mech Engr

NGL 23-005-275 University of Michigan - Ann Arbor **2898**
Solar research program of McMath-Hulbert Observatory and improvement of photoheliographic telescope

Period	Obligations
04/08/68-09/30/79	FY80: TOTAL: \$769,580
Prin Invest	NASA Tech Officer CASE Category
Mohler, O. C.	HD-ST/Bohlin, J. D. 11-Astronomy

NGR 23-005-015 University of Michigan - Ann Arbor **2899**
Theoretical investigation of space charge waves in ionosphere and space plasma sheaths

Period	Obligations
10/28/63-06/30/80	FY80: \$143,000 TOTAL: \$1,665,805
Prin Invest	NASA Tech Officer CASE Category
Nagy, A. F.	HD-ST/Hedin, A. E. 31-Atmos Sci
	HD-ST/Schmerling, E. R.

NGR 23-005-094 University of Michigan - Ann Arbor **2900**
An investigation of plasma kinetics, with emphasis on the interaction between rarefied plasmas and moving bodies

Period	Obligations
06/26/64-08/31/79	FY80: TOTAL: \$406,101
Prin Invest	NASA Tech Officer CASE Category
Liu, V. C.	HD-SL/Murphy, R. E. 31-Atmos Sci
	HD-SL/Brunk, W. E.

NGR 23-005-320 University of Michigan - Ann Arbor **2901**
Theoretical and experimental studies of spacecraft space plasma interactions

Period	Obligations
01/29/69-07/31/80	FY80: TOTAL: \$534,557
Prin Invest	NASA Tech Officer CASE Category
Samir, U.	HD-ST/Hedin, A. E. 13-Physics
	HD-ST/Schmerling, E. R.

NGR 23-005-360 University of Michigan - Ann Arbor **2902**
A program in aeronomy

Period	Obligations
12/29/69-01/31/81	FY80: \$155,000 TOTAL: \$1,783,501
Prin Invest	NASA Tech Officer CASE Category
Sharp, W. E.	GSFC/Bissell, E. E. 13-Physics
	HD-ST/Schmerling, E. R.

NGR 23-005-464 University of Michigan - Ann Arbor **2903**
Optical studies of galactic X-ray sources

Period	Obligations
03/02/71-02/28/81	FY80: \$20,255 TOTAL: \$165,723
Prin Invest	NASA Tech Officer CASE Category
Hiltner, W. A.	HD-SC/Weiler, F. J. 11-Astronomy
	HD-SC/Bogges, N. W.

NGR 23-005-528 University of Michigan - Ann Arbor **2904**
Fiber-reinforced solids possessing great fracture toughness and the role of interfacial strength

Period	Obligations
07/26/72-06/30/81	FY80: \$44,196 TOTAL: \$223,394
Prin Invest	NASA Tech Officer CASE Category
Felbeck, D. K.	LARC/Fichter, W. B. 47-Materials Engr

NGT 23-005-800 University of Michigan - Ann Arbor **2905**
Methods of geobotanical prospecting graduate student researchers program

Period	Obligations
09/01/80-08/31/81	FY80: \$12,000 TOTAL: \$12,000
Prin Invest	NASA Tech Officer CASE Category
Olson, C. E.	HD-LU/Carter, C. H. 32-Geological Sci

NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)

NSG 1243 University of Michigan - Ann Arbor **2906**
Rain scavenging of solid rocket motor exhaust clouds
Period *Obligations*
10/01/75-05/31/81 FY80: \$40,001 TOTAL: \$257,736
Prin Invest *NASA Tech Officer* *CASE Category*
Dingle, A. N. LARC/Pellett, G. L. 31-Atmos Sci

NSG 1306 University of Michigan - Ann Arbor **2907**
Models and techniques for evaluating the effectiveness of aircraft computing systems
Period *Obligations*
05/01/76-06/30/81 FY80: \$79,582 TOTAL: \$312,175
Prin Invest *NASA Tech Officer* *CASE Category*
Meyer, J. F. LARC/Migneault, G. E. 45-Elec Engr

NSG 1482 University of Michigan - Ann Arbor **2908**
Application of Earth's albedo measurements to climate studies
Period *Obligations*
01/01/78-10/31/79 FY80: TOTAL: \$29,300
Prin Invest *NASA Tech Officer* *CASE Category*
Bartman, F. L. LARC/Smith, G. L. 31-Atmos Sci
LARC/Suttles, J. T.

NSG 1494 University of Michigan - Ann Arbor **2909**
Analysis and prediction of dynamic aircraft tire data from static measurements
Period *Obligations*
03/01/78-09/30/80 FY80: TOTAL: \$39,348
Prin Invest *NASA Tech Officer* *CASE Category*
Clark, S. K. LARC/McCarty, J. L. 41-Aero Engr
LARC/Tanner, J. A.

NSG 1607 University of Michigan - Ann Arbor **2910**
Transient temperatures in aircraft tires
Period *Obligations*
09/01/79-06/14/81 FY80: \$32,697 TOTAL: \$86,030
Prin Invest *NASA Tech Officer* *CASE Category*
Clark, S. K. LARC/McCarty, J. L. 41-Aero Engr
LARC/Tanner, J. A.

NSG 2333 University of Michigan - Ann Arbor **2911**
Crash-impact fire of fiber reinforced composites
Period *Obligations*
08/15/78-10/15/80 FY80: \$28,900 TOTAL: \$68,287
Prin Invest *NASA Tech Officer* *CASE Category*
Springer, G. S. ARC/Fish, R. H. 49-Engr, NEC
ARC/Mansfield, J.

NSG 3165 University of Michigan - Ann Arbor **2912**
A study of local parameters affecting emissions from gas turbine engines
Period *Obligations*
11/01/77-10/31/80 FY80: \$36,675 TOTAL: \$107,280
Prin Invest *NASA Tech Officer* *CASE Category*
Kauffman, C. W. LERC/Freogovic, D. F. 41-Aero Engr
LERC/Jones, R. E.

NSG 3192 University of Michigan - Ann Arbor **2913**
Morphology of Kevlar fibers
Period *Obligations*
04/10/78-01/31/81 FY80: \$30,000 TOTAL: \$60,000
Prin Invest *NASA Tech Officer* *CASE Category*
Yeh, G. S. LERC/Lauver, R. W. 47-Materials Engr

NSG 5189 University of Michigan - Ann Arbor **2914**
Direct measurements of photolysis rates of stratospheric constituents
Period *Obligations*
08/01/77-08/31/81 FY80: \$88,345 TOTAL: \$239,026
Prin Invest *NASA Tech Officer* *CASE Category*
Stedman, D. H. GSFC/Reed, E. I. 31-Atmos Sci

NSG 5281 University of Michigan - Ann Arbor **2915**
Interactions of precipitating electrons with the ionosphere using characteristic spectral parameters
Period *Obligations*
07/01/78-12/31/80 FY80: TOTAL: \$47,733
Prin Invest *NASA Tech Officer* *CASE Category*
Fontheim, E. G. GSFC/Spencer, N. W. 31-Atmos Sci
Ong, R. S.

NSG 5282 University of Michigan - Ann Arbor **2916**
Chemical and dynamics processing at high latitudes
Period *Obligations*
07/01/78-09/30/79 FY80: TOTAL: \$22,322
Prin Invest *NASA Tech Officer* *CASE Category*
Nagy, A. F. GSFC/Spencer, N. W. 31-Atmos Sci
Banks, P. M.

NSG 5366 University of Michigan - Ann Arbor **2917**
Research of supernova remnants and nucleosynthesis
Period *Obligations*
05/06/79-05/07/80 FY80: TOTAL: \$2,571
Prin Invest *NASA Tech Officer* *CASE Category*
Kirshner, R. GSFC/Boggess, A. 11-Astronomy
Chevalier, R. A.

NSG 7209 University of Michigan - Ann Arbor **2918**
A program of stratospheric research
Period *Obligations*
01/01/76-12/31/80 FY80: TOTAL: \$594,030
Prin Invest *NASA Tech Officer* *CASE Category*
Cochran, J. L. HD-EB/Watson, R. T. 31-Atmos Sci

NSG 7308 University of Michigan - Ann Arbor **2919**
The physical and chemical properties of the prebiotic atmosphere
Period *Obligations*
02/01/77-01/31/81 FY80: \$24,999 TOTAL: \$99,105
Prin Invest *NASA Tech Officer* *CASE Category*
Kuhn, W. R. HD-SB/Devincenzi, D. L. 31-Atmos Sci

NASA'S UNIVERSITY PROGRAM MICHIGAN (Continued)

NSG 7404 University of Michigan - Ann Arbor 2920
A program for research in planetary atmospheres

Period	Obligations	
10/01/77-01/31/81	FY80: \$62,810	TOTAL: \$181,746
Prin Invest	NASA Tech Officer	CASE Category
Atreya, S. K.	HD-SL/Murphy, R. E.	31-Atmos Sci
	HD-SL/Brink, W. E.	

NSG 7452 University of Michigan - Ann Arbor 2921
Bio-chirality search with variable helicity positrons

Period	Obligations	
07/01/78-06/30/81	FY80: \$79,091	TOTAL: \$99,091
Prin Invest	NASA Tech Officer	CASE Category
Rich, A.	HD-SB/Devincenzi, D. L.	51-Biological Sci

NSG 7492 University of Michigan - Ann Arbor 2922
Global-solar-terrestrial electrostatic coupling

Period	Obligations	
09/01/78-10/31/80	FY80: \$40,000	TOTAL: \$53,200
Prin Invest	NASA Tech Officer	CASE Category
Hays, P. B.	HD-ST/Schmerling, E. R.	31-Atmos Sci

NSG 7557 University of Michigan - Ann Arbor 2923
Neutral mass spectrometry development for a cometary mission

Period	Obligations	
04/01/79-03/31/80	FY80:	TOTAL: \$56,000
Prin Invest	NASA Tech Officer	CASE Category
Carignan, G. R.	HD-SL/Murphy, R. E.	31-Atmos Sci

NSG 7608 University of Michigan - Ann Arbor 2924
An investigation of halos surrounding spiral galaxies

Period	Obligations	
06/01/79-03/31/80	FY80:	TOTAL: \$15,909
Prin Invest	NASA Tech Officer	CASE Category
Hegy, D. J.	HD-SC/Wisler, E. J.	11-Astronomy
	HD-SC/Roman, N. G.	

NSG 9047 University of Michigan - Ann Arbor 2925
Mammalian gravity receptors: Structure and metabolism

Period	Obligations	
11/01/76-10/31/80	FY80: \$45,022	TOTAL: \$173,022
Prin Invest	NASA Tech Officer	CASE Category
Ross, M.	HD-SB/Halstead, T. W.	51-Biological Sci

NAG 2-39 Wayne State University 2926
Development of absorption technique for OH measurements in ambient air

Period	Obligations	
05/01/80-04/30/81	FY80: \$70,000	TOTAL: \$70,000
Prin Invest	NASA Tech Officer	CASE Category
Wang, C. C.	ARC/Munoz, R. M.	31-Atmos Sci
Yu, F. T.	ARC/Marguet, A. P.	

NSG 1330 Wayne State University 2927
Analytical modeling of noise source in a moving jet

Period	Obligations	
08/17/76-09/30/80	FY80: \$6,018	TOTAL: \$35,616
Prin Invest	NASA Tech Officer	CASE Category
Chow, P. L.	LARC/Maestrello, L.	41-Aero Engr
	LARC/Liu, C. H.	

NAG 3-92 Western Michigan University 2928
Aircraft engine condition monitoring by vibration and sound frequency spectrum analysis

Period	Obligations	
08/18/80-02/17/81	FY80: \$60,000	TOTAL: \$60,000
Prin Invest	NASA Tech Officer	CASE Category
Behm, H. D.	LERC/Schmidt, H. W.	41-Aero Engr
Hathaway, R.		
Cummings, J. W.		

MINNESOTA

NSG 5285 Augsburg College 2929
Analysis of long-term density variations of atomic nitrogen

Period	Obligations	
07/01/78-12/31/80	FY80: \$7,950	TOTAL: \$34,220
Prin Invest	NASA Tech Officer	CASE Category
Engelbreton, M. J.	GSFC/Spencer, N. W.	31-Atmos Sci

NAS 5-26221 Concordia College in Moorhead 2930
Study of the effects of cosmic dust particle impacts on mass spectrometers

Period	Obligations	
05/19/80-11/01/80	FY80: \$17,511	TOTAL: \$17,511
Prin Invest	NASA Tech Officer	CASE Category
Bailey, C. L.	GSFC/Donn, B.	13-Physics
	GSFC/Niemann, H. B.	

NAG 1-99 Univ of Minnesota - Minneapolis-St Paul 2931
Increasing the damping in composite truss members

Period	Obligations	
09/01/80-09/30/81	FY80: \$40,000	TOTAL: \$40,000
Prin Invest	NASA Tech Officer	CASE Category
Plunkett, R.	LARC/Leadbetter, S. A.	47-Materials Engr

NAG 2-4 Univ of Minnesota - Minneapolis-St Paul 2932
A subsurface panel method

Period	Obligations	
11/01/79-11/30/80	FY80: \$38,975	TOTAL: \$38,975
Prin Invest	NASA Tech Officer	CASE Category
Moran, J. P.	ARC/Chapman, G. T.	41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
MINNESOTA (Continued)**

NAG 2-31 Univ of Minnesota - Minneapolis-St Paul 2933
Condensation nuclei measurements in the stratosphere for the
NASA ACE Program

Period	Obligations
02/01/80-12/31/80	FY80: \$77,000 TOTAL: \$77,000
Prin Invest	NASA Tech Officer CASE Category
Liu, B. Y.	ARC/Page, W. A. 31-Atmos Sci
Wilson, J. C.	

NAG 2-63 Univ of Minnesota - Minneapolis-St Paul 2934
Drop dynamics and breakup

Period	Obligations
08/01/80-07/31/81	FY80: \$43,075 TOTAL: \$43,075
Prin Invest	NASA Tech Officer CASE Category
Scriven, L. E.	ARC/Brooks, W. F. 13-Physics
Brown, R. A.	ARC/Chapman, G.
Gifford, W. A.	

NAS 5-11310 Univ of Minnesota - Minneapolis-St Paul 2935
Ac electric fields experiment Helios

Period	Obligations
06/29/70-09/30/81	FY80: \$53,000 TOTAL: \$1,568,222
Prin Invest	NASA Tech Officer CASE Category
Kellogg, P. J.	GSFC/Corrigan, J. P. 11-Astronomy

NAS 5-11438 Univ of Minnesota - Minneapolis-St Paul 2936
Open source neutral mass spectrometers for AE spacecraft,
missions C, D, and E

Period	Obligations
06/15/71-09/30/81	FY80: TOTAL: \$1,340,000
Prin Invest	NASA Tech Officer CASE Category
Nier, A. O.	GSFC/Rice, C. 31-Atmos Sci

NAS 5-23703 Univ of Minnesota - Minneapolis-St Paul 2937
ATS-6 environmental measurements experiment data reduction
and analysis

Period	Obligations
11/15/76-08/31/79	FY80: TOTAL: \$103,335
Prin Invest	NASA Tech Officer CASE Category
Winckler, J. R.	GSFC/Wende, C. D. 31-Atmos Sci

NAS 5-25389 Univ of Minnesota - Minneapolis-St Paul 2938
Dynamic Explorer A and B magnetometer experiment support

Period	Obligations
11/08/78-11/08/80	FY80: TOTAL: \$8,000
Prin Invest	NASA Tech Officer CASE Category
Cahill, L. J., Jr.	GSFC/Sugiura, M. 13-Physics

NAS 5-25753 Univ of Minnesota - Minneapolis-St Paul 2939
Selected hardware for unified radio and plasma wave experiment
for international solar polar mission

Period	Obligations
07/03/79-09/30/83	FY80: \$237,886 TOTAL: \$394,586
Prin Invest	NASA Tech Officer CASE Category
Kellogg, P. J.	GSFC/Stone, R. 11-Astronomy

NAS 5-26056 Univ of Minnesota - Minneapolis-St Paul 2940
Generate an investigation development plan and establish the
preliminary interfaces between the space transportation system/
Spacelab and instrument per high energy interactions of cosmic
rays

Period	Obligations
02/14/80-12/13/80	FY80: \$134,182 TOTAL: \$134,182
Prin Invest	NASA Tech Officer CASE Category
Waddington, C. J.	GSFC/Underwood, C. 11-Astronomy

NAS 8-27977 Univ of Minnesota - Minneapolis-St Paul 2941
Design, development, and operation of Cerenkov portion of the
ACR-7 heavy nuclei experiment under the HEAO program

Period	Obligations
06/16/72-09/30/81	FY80: \$128,289 TOTAL: \$1,488,289
Prin Invest	NASA Tech Officer CASE Category
Waddington, C. J.	MSFC/Stone, J. F. 11-Astronomy

NGL 24-005-009 Univ of Minnesota - Minneapolis-St Paul 2942
Development and application of mass spectrometers to studies
of Earth's upper atmosphere planetary atmospheres

Period	Obligations
08/01/62-08/31/81	FY80: \$161,977 TOTAL: \$1,853,682
Prin Invest	NASA Tech Officer CASE Category
Nier, A. O.	HD-SL/Murphy, R. E. 31-Atmos Sci
	HD-SL/Brunk, W. E.

NGL 24-005-225 Univ of Minnesota - Minneapolis-St Paul 2943
Lunar sample analysis

Period	Obligations
01/26/71-01/31/81	FY80: \$130,000 TOTAL: \$966,249
Prin Invest	NASA Tech Officer CASE Category
Pepin, R. O.	JSC/Harris, J. W. 13-Physics

NGL 24-005-263 Univ of Minnesota - Minneapolis-St Paul 2944
Study of Minnesota forests and lakes using data from Earth
Resources Technology Satellites

Period	Obligations
07/06/72-06/30/82	FY80: TOTAL: \$595,000
Prin Invest	NASA Tech Officer CASE Category
Hobbie, R. K.	HD-ET/Vitale, J. A. 39-Env Sci, NEC

NGR 24-005-050 Univ of Minnesota - Minneapolis-St Paul 2945
Measurement of the gamma ray flux of various celestial point
sources from high altitude balloons

Period	Obligations
04/21/65-11/30/80	FY80: \$96,000 TOTAL: \$1,044,508
Prin Invest	NASA Tech Officer CASE Category
Waddington, C. J.	HD-SC/Gilman, D. A. 11-Astronomy
	HD-SC/Opp, A. G.

NSG 1431 Univ of Minnesota - Minneapolis-St Paul 2946
Neutral constituent measurements in the stratosphere

Period	Obligations
07/01/77-09/30/80	FY80: \$93,973 TOTAL: \$303,713
Prin Invest	NASA Tech Officer CASE Category
Mauersberger, K.	LARC/Beswick, A. G. 31-Atmos Sci
Nier, A. O.	

NASA'S UNIVERSITY PROGRAM MINNESOTA (Continued)

NSG 2014 Univ of Minnesota - Minneapolis-St Paul 2947
Exploratory astrophysics and infrared astronomy
Period Obligations
02/01/74-03/31/81 FY80: \$62,000 TOTAL: \$437,000
Prin Invest NASA Tech Officer CASE Category
Ney, E. HD-SC/Bogges, N. W. 11-Astronomy
HD-SC/Weiler, E. J.

NSG 3041 Univ of Minnesota - Minneapolis-St Paul 2948
Ion beam sputter etch and deposition study
Period Obligations
01/01/75-08/01/80 FY80: TOTAL: \$204,385
Prin Invest NASA Tech Officer CASE Category
Wehner, G. K. LERC/Kerslake, W. R. 13-Physics

NSG 5088 Univ of Minnesota - Minneapolis-St Paul 2949
Magnetospheric physics phenomena using sounding rockets
Period Obligations
11/01/75-12/31/81 FY80: \$280,000 TOTAL: \$819,593
Prin Invest NASA Tech Officer CASE Category
Winckler, J. R. GSFC/Guidotti, J. 13-Physics

NSG 5373 Univ of Minnesota - Minneapolis-St Paul 2950
Experiments employing a rocket-borne electron accelerator
Period Obligations
06/15/79-11/30/80 FY80: \$75,000 TOTAL: \$102,800
Prin Invest NASA Tech Officer CASE Category
Kellogg, P. J. GSFC/Guidotti, J. 13-Physics
Bernstein, W.

NSG 5397 Univ of Minnesota - Minneapolis-St Paul 2951
Observations of emission lines in the crab nebula
Period Obligations
08/01/79-07/31/81 FY80: \$9,300 TOTAL: \$11,320
Prin Invest NASA Tech Officer CASE Category
Davidson, K. GSFC/Bogges, A. 11-Astronomy
Gull, T. R.
Kafatos, M.

NSG 6009 Univ of Minnesota - Minneapolis-St Paul 2952
Study of neutral composition of upper atmosphere with rocket-borne mass spectrometers
Period Obligations
07/01/75-09/30/80 FY80: \$53,000 TOTAL: \$179,000
Prin Invest NASA Tech Officer CASE Category
Nier, A. O. WFC/Early, L. J. 19-Phys Sci, NEC
WFC/Pless, R. H.

NSG 6021 Univ of Minnesota - Minneapolis-St Paul 2953
Rocket study of auroral processes
Period Obligations
06/01/78-09/30/80 FY80: \$76,284 TOTAL: \$177,682
Prin Invest NASA Tech Officer CASE Category
Cahill, I. J., Jr. WFC/Early, L. J. 19-Phys Sci, NEC
WFC/Pless, R. H.

NSG 7005 Univ of Minnesota - Minneapolis-St Paul 2954
Energetic particles in the magnetosphere and space
Period Obligations
07/01/73-09/30/80 FY80: TOTAL: \$837,000
Prin Invest NASA Tech Officer CASE Category
Winckler, J. R. HD-ST/King, J. H. 39-Env Sci, NEC
HD-ST/Schmerling, E. R.

NSG 7221 Univ of Minnesota - Minneapolis-St Paul 2955
Neutral constituent measurements in stratosphere
Period Obligations
03/16/76-02/29/80 FY80: TOTAL: \$88,243
Prin Invest NASA Tech Officer CASE Category
Mauersberger, K. HD-EB/Toth, R. A. 31-Atmos Sci

NSG 7237 Univ of Minnesota - Minneapolis-St Paul 2956
Interpretation of data obtained with the Explorer 45 spacecraft: Major objective is understanding of magnetic storms
Period Obligations
06/01/76-03/31/80 FY80: TOTAL: \$72,000
Prin Invest NASA Tech Officer CASE Category
Cahill, L. J., Jr. HD-ST/Cauffman, D. P. 19-Phys Sci, NEC
HD-ST/Schmerling, E. R.

NSG 7296 Univ of Minnesota - Minneapolis-St Paul 2957
Triaxial drop shapes rotating and charged liquid drops
Period Obligations
12/15/76-12/15/79 FY80: TOTAL: \$95,310
Prin Invest NASA Tech Officer CASE Category
Scriven, L. E. HD-RS/Lundholm, J. G., Jr. 13-Physics
JPL/Saffren, M. M.

NSG 7575 Univ of Minnesota - Minneapolis-St Paul 2958
Cometary mass spectrometry
Period Obligations
04/01/79-03/31/80 FY80: TOTAL: \$70,864
Prin Invest NASA Tech Officer CASE Category
Nier, A. O. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

MISSISSIPPI

NGR 25-012-001 Alcorn State University 2959
Radio tracking of geostationary satellites
Period Obligations
09/01/73-06/30/81 FY80: \$28,990 TOTAL: \$243,275
Prin Invest NASA Tech Officer CASE Category
Paul, M. P. GSFC/Grebowsky, J. 31-Atmos Sci

NASA'S UNIVERSITY PROGRAM **MISSISSIPPI (Continued)**

NSG 8036 **Alcorn State University** **2960**
 Bio-gas production from alligator weeds
Period Obligations
 06/01/76-11/29/80 **FY80:** **TOTAL: \$88,213**
Prin Invest NASA Tech Officer CASE Category
 Latif, A. NSTL/Wolverton, B. C. 51-Biological Sci

NSG 736 **Jackson State University** **2961**
 LANDSAT study of urban land use of Jackson, MS
Period Obligations
 08/13/79-11/12/80 **FY80:** **TOTAL: \$93,684**
Prin Invest NASA Tech Officer CASE Category
 Lang, M. NSTL/Atwell, B. H. 32-Geological Sci

NSG 8026 **Jackson State University** **2962**
 Aquatic plants as filtration systems for chlorinated hydrocarbons
Period Obligations
 06/01/75-05/31/81 **FY80: \$52,692** **TOTAL: \$215,689**
Prin Invest NASA Tech Officer CASE Category
 Shores, F. NSTL/Wolverton, B. C. 39-Env Sci, NEC

NAG 1-3 **Mississippi State University** **2963**
 Investigation of flight test methods for the performance of general aviation aircraft
Period Obligations
 11/01/79-01/31/81 **FY80: \$75,700** **TOTAL: \$75,700**
Prin Invest NASA Tech Officer CASE Category
 Bull, G. LARC/Holmes, B. J. 41-Aero Engr
 Bridges, P. D.

NAG 3-56 **Mississippi State University** **2964**
 Propeller propulsion integration
Period Obligations
 04/01/80-04/09/81 **FY80 \$58,250** **TOTAL \$58,250**
Prin Invest NASA Tech Officer CASE Category
 Bennett, A. G., Jr. LERC/Mitchell, G. A. 41-Aero Engr

NAS 8-31373 **Mississippi State University** **2965**
 Study of digital holographic filter generation
Period Obligations
 03/20/75-12/31/78 **FY80:** **TOTAL \$27,090**
Prin Invest NASA Tech Officer CASE Category
 Ingels, F. M. MSFC/Wallace, G. R. 45-Elec Engr
 MSFC/McDonough, G. F.

NAS 8-32912 **Mississippi State University** **2966**
 Develop a computer program to compute the flow field, aerodynamic forces and heating rate on arbitrary shaped bodies
Period Obligations
 05/25/78-09/30/80 **FY80:** **TOTAL: \$68,787**
Prin Invest NASA Tech Officer CASE Category
 Kassner, J. L., Jr. MSFC/Sims, J. L. 49-Engr, NEC
 MSFC/Donahoo, L. K.

NAS 8-33448 **Mississippi State University** **2967**
 High density circuits technology
Period Obligations
 07/13/79-12/12/80 **FY80:** **TOTAL: \$35,810**
Prin Invest NASA Tech Officer CASE Category
 Wade, T. E. MSFC/Hollis, B. R. 45-Elec Engr
 MSFC/Routh, D. E.

NAS 8-33450 **Mississippi State University** **2968**
 Electron lithography star design guidelines
Period Obligations
 08/02/79-02/14/82 **FY80: \$54,000** **TOTAL: \$79,069**
Prin Invest NASA Tech Officer CASE Category
 Causey, W. H. MSFC/Edge, T. M. 45-Elec Engr

NAS 8-33570 **Mississippi State University** **2969**
 Research study: Analysis of space telescope collection systems
Period Obligations
 07/26/79-11/18/81 **FY80: \$20,000** **TOTAL: \$30,000**
Prin Invest NASA Tech Officer CASE Category
 Ingels, F. M. MSFC/Thomas, J. H. 11-Astronomy
 MSFC/Coffey, R. D.

NAS 8-33887 **Mississippi State University** **2970**
 Research study: A study of high density bit transition requirements versus the effects on BCH error coding
Period Obligations
 07/01/80-08/31/81 **FY80: \$39,707** **TOTAL: \$39,707**
Prin Invest NASA Tech Officer CASE Category
 Ingels, F. M. MSFC/Coffey, R. D. 45-Elec Engr
 MSFC/Mann, D. F.

NAS13-158 **Mississippi State University** **2971**
 To provide remote sensing workshops for state government personnel
Period Obligations
 07/29/80-07/28/81 **FY80: \$12,000** **TOTAL: \$12,000**
Prin Invest NASA Tech Officer CASE Category
 Miller, W. F. NSTL/Atwell, B. H. 32-Geological Sci

NGI 25-001-054 **Mississippi State University** **2972**
 Application of remotely sensed data to state and regional problems
Period Obligations
 11/01/73-10/30/83 **FY80 \$100,000** **TOTAL: \$900,000**
Prin Invest NASA Tech Officer CASE Category
 Miller, W. F. HD-ET/Vitale, J. A. 39-Env Sci, NEC

NGR 25-001-055 **Mississippi State University** **2973**
 Numerical solution of the Navier-Stokes equations for arbitrary two-dimensional multi-element airfoils
Period Obligations
 01/01/74-02/28/81 **FY80: \$39,067** **TOTAL: \$221,329**
Prin Invest NASA Tech Officer CASE Category
 Thompson, J. F. LARC/South, J. C., Jr. 41-Aero Engr

NASA'S UNIVERSITY PROGRAM **MISSISSIPPI (Continued)**

NSG 1083 **Mississippi State University** **2974**
An exploratory investigation of the cooling drag associated with
general aviation propulsive systems
Period *Obligations*
09/01/74-04/30/80 **FY80:** **TOTAL: \$295,259**
Prin Invest *NASA Tech Officer* *CASE Category*
Rogerson, A. C. LARC/Hall, A. W. 41-Aero Engr
Brown, N. B., Jr.

NSG 1249 **Mississippi State University** **2975**
Flight test of a wing stall sensor and evaluation of its application
to an aircraft stall deterrent system
Period *Obligations*
09/15/75-02/29/80 **FY80:** **TOTAL: \$199,165**
Prin Invest *NASA Tech Officer* *CASE Category*
Bennett, A. G., Jr. LARC/Stewart, E. C. 41-Aero Engr
Owens, J. K.

NSG 1402 **Mississippi State University** **2976**
Propeller propulsion integration
Period *Obligations*
04/01/77-04/30/80 **FY80: \$4,932** **TOTAL: \$121,594**
Prin Invest *NASA Tech Officer* *CASE Category*
Bennett, A. G., Jr. LARC/Johnson, J. L. 41-Aero Engr

NSG 1454 **Mississippi State University** **2977**
Investigation of a flight test method for determining airplane
drag utilizing a propeller wake survey rake
Period *Obligations*
09/01/77-03/31/80 **FY80: \$5,650** **TOTAL: \$24,177**
Prin Invest *NASA Tech Officer* *CASE Category*
Bennett, A. G., Jr. LARC/Judd, J. H. 41-Aero Engr
Miley, S. J

NSG 1577 **Mississippi State University** **2978**
Transformation of two and three dimensional regions by elliptic
systems
Period *Obligations*
11/15/78-11/14/80 **FY80: \$22,560** **TOTAL: \$43,140**
Prin Invest *NASA Tech Officer* *CASE Category*
Thompson, J. F. LARC/Smith, R. E., Jr. 21-Mathematics
Mastin, C. W LARC/Shoosmith, J. N.

NSG 1623 **Mississippi State University** **2979**
Theoretical investigation of high-lift aerodynamics
Period *Obligations*
08/20/79-11/19/80 **FY80:** **TOTAL: \$52,100**
Prin Invest *NASA Tech Officer* *CASE Category*
Bennett, A. G., Jr LARC/Thomas, J. L. 41-Aero Engr

NSG 1539 **Mississippi University For Women** **2980**
Polyimide monomers and intermediates
Period *Obligations*
06/15/78-10/31/80 **FY80: \$23,238** **TOTAL: \$48,803**
Prin Invest *NASA Tech Officer* *CASE Category*
Pratt, J. R. LARC/St.Clair, T. L. 12-Chemistry
LARC/Johnston, N. J.

NAG 1-49 **University of Southern Mississippi** **2981**
A photoionization mass spectrometer study of carbon vapor
Period *Obligations*
03/01/80-09/30/81 **FY80: \$26,000** **TOTAL: \$26,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Rayborn, G. H. LARC/Jones, J. J. 13-Physics

NAS13-81 **University of Southern Mississippi** **2982**
Evaluate nutritional value of single cell protein using water
hyacinth extracts as substrate study
Period *Obligations*
03/20/78-09/19/79 **FY80:** **TOTAL: \$10,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Stocks, P. K. NSTL/Wolverton, B. C. 39-Env Sci, NEC

NAS13-95 **University of Southern Mississippi** **2983**
Demonstration and evaluation of EMS telemetry capability in
remote areas using synchronous satellite communications
technology
Period *Obligations*
07/17/78-05/31/81 **FY80: \$98,000** **TOTAL: \$274,236**
Prin Invest *NASA Tech Officer* *CASE Category*
Brundage, W. G. NSTL/Whitley, S. L. 49-Engr, NEC

MISSOURI

NAG13-1 **Lincoln University - Mo.** **2984**
LANDSAT study relating soil zinc content to diabetes
Period *Obligations*
01/02/80-01/01/81 **FY80: \$54,844** **TOTAL: \$54,844**
Prin Invest *NASA Tech Officer* *CASE Category*
Molnar, I. G. NSTL/Atwell, B. H. 59-Life Sci, NEC

NAS 8-33370 **Saint Louis University** **2985**
Kinetic energy budgets in areas of intense convections
Period *Obligations*
04/01/79-04/30/81 **FY80: \$36,961** **TOTAL: \$61,626**
Prin Invest *NASA Tech Officer* *CASE Category*
Fuelburg, H. E. MSFC/Hill, K. 31-Atmos Sci
MSFC/Torkar, J. E.

NAGW 46 **University of Missouri - Columbia** **2986**
Development of remote sensing experience at the University of
Missouri-Columbia
Period *Obligations*
04/01/80-03/31/83 **FY80: \$170,000** **TOTAL: \$170,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Johannsen, C. J. HD-ET/Vitale, J. A. 39-Env Sci, NEC

NASA'S UNIVERSITY PROGRAM
MISSOURI (Continued)

NAS 8-31150 University of Missouri - Columbia 2987
Research study of microphysical processes in atmospheric clouds

Period	Obligations	
02/11/75-06/30/81	FY80: TOTAL: \$116,488	
Prin Invest	NASA Tech Officer	CASE Category
Tung, C.	MSFC/Smith, R. E.	31-Atmos Sci
Hale, B. N.	MSFC/Anderson, B. J.	

NAS 8-31849 University of Missouri - Columbia 2988
Cloud physics laboratory science simulator

Period	Obligations	
04/29/76-11/14/80	FY80: \$40,000 TOTAL: \$319,958	
Prin Invest	NASA Tech Officer	CASE Category
Kassner, J. L., Jr.	MSFC/Smith, R. C.	31-Atmos Sci
	MSFC/Thomas, P. E.	

NAS 9-15477 University of Missouri - Columbia 2989
Development and verification of simulation models for analyzing orbiter digital communications and data links

Period	Obligations	
01/01/78-01/01/82	FY80: \$30,000 TOTAL: \$55,000	
Prin Invest	NASA Tech Officer	CASE Category
Tranter, W. H.	JSC/Eggleston, T. W.	45-Elec Engr

NAS 9-15896 University of Missouri - Columbia 2990
Earth resources synthetic aperture radar applications development working group

Period	Obligations	
09/17/79-12/31/80	FY80: \$111,799 TOTAL: \$161,799	
Prin Invest	NASA Tech Officer	CASE Category
Rouse, J. W.	JSC/Harnage, M. J.	39-Env Sci, NEC

NAS13-140 University of Missouri - Columbia 2991
Incorporation of LANDSAT technology into farmers information system being developed by NASA and the Missouri farmers association

Period	Obligations	
02/01/80-12/31/80	FY80: \$40,000 TOTAL: \$40,000	
Prin Invest	NASA Tech Officer	CASE Category
Johannsen, C. J.	NSTL/Joyce, A. T.	32-Geological Sci

NSG 5338 University of Missouri - Columbia 2992
Research of optimum radiometer parameters for soil moisture monitoring

Period	Obligations	
04/01/79-07/31/81	FY80: TOTAL: \$29,484	
Prin Invest	NASA Tech Officer	CASE Category
Rouse, J. W.	GSFC/Schmugge, T. J.	39-Env Sci, NEC

NAG 1-26 University of Missouri - Rolla 2993
Aerodynamic-structural study of canard wing, dual wing, and conventional wing system for general aviation applications

Period	Obligations	
01/01/80-03/31/81	FY80: \$69,421 TOTAL: \$69,421	
Prin Invest	NASA Tech Officer	CASE Category
Selberg, B. P.	LARC/Holmes, B. J.	41-Aero Engr

NAS 8-32976 University of Missouri - Rolla 2994
Monodisperse cloud experiment

Period	Obligations	
04/03/78-12/31/81	FY80: \$20,000 TOTAL: \$80,000	
Prin Invest	NASA Tech Officer	CASE Category
Hagen, D. E.	MSFC/Fallon, R. A.	31-Atmos Sci
Kassner, J. L., Jr.	MSFC/Smith, R. E.	
White, D. R.		

NAS13-150 University of Missouri - Rolla 2995
Conduct short courses in remote sensing, as an aid in mine engineering, reclamation and quality control

Period	Obligations	
05/15/80-05/14/81	FY80: \$14,930 TOTAL: \$14,930	
Prin Invest	NASA Tech Officer	CASE Category
Barr, D. J.	NSTL/Atwell, B. H.	32-Geological Sci

NCA 2-450001 University of Missouri - Rolla 2996
The effect of turbulent boundary layer on transonic flows

Period	Obligations	
12/01/79-11/30/80	FY80: \$20,000 TOTAL: \$20,000	
Prin Invest	NASA Tech Officer	CASE Category
Lee, S. C.	ARC/Holst, T. L.	41-Aero Engr
	ARC/Vandalsem, W. R.	

NSG 1369 University of Missouri - Rolla 2997
Transport properties in the atmosphere of Jupiter

Period	Obligations	
01/01/77-03/31/81	FY80: \$21,424 TOTAL: \$54,404	
Prin Invest	NASA Tech Officer	CASE Category
Biolsi, L.	LARC/Graves, R. A.	12-Chemistry
	LARC/Jones, J. J.	

NSG 1452 University of Missouri - Rolla 2998
Study of gas-solid airflow over a flat plate

Period	Obligations	
10/01/77-11/30/81	FY80: \$64,603 TOTAL: \$197,052	
Prin Invest	NASA Tech Officer	CASE Category
Patterson, G. K.	LARC/Hefner, J. N.	41-Aero Engr
Oetting, R. B.	LARC/Bushnell, D. M.	
Anderson, R. A.		

NSG 3231 University of Missouri - Rolla 2999
Transmission of sound in high speed flows

Period	Obligations	
01/01/79-03/31/81	FY80: \$30,649 TOTAL: \$57,294	
Prin Invest	NASA Tech Officer	CASE Category
Eversman, W.	LERC/Baumeister, K. J.	41-Aero Eng
	LERC/Rice, E. J.	

NSG 5400 University of Missouri - Saint Louis 3000
Research of mass loss in the ultraviolet spectrum

Period	Obligations	
07/09/79-03/31/81	FY80: TOTAL: \$11,700	
Prin Invest	NASA Tech Officer	CASE Category
Lamb, S. A.	GSFC/Boggett, A.	11-Astronomy
Sargent, W. L.		

NASA'S UNIVERSITY PROGRAM
MISSOURI (Continued)

NSG 7563 **University of Missouri - Saint Louis** **3001**
Condensate phenomena in the polar regions of Mars
Period *Obligations*
03/01/79-09/30/80 **FY80: \$16,715** **TOTAL: \$29,310**
Prin Invest *NASA Tech Officer* *CASE Category*
James, P. B. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/Boyce, J. M.

NAG 1-38 **Washington University** **3002**
Measurement of the diurnal variation of the radicals in the upper atmosphere
Period *Obligations*
03/06/80-03/05/81 **FY80: \$50,050** **TOTAL: \$50,050**
Prin Invest *NASA Tech Officer* *CASE Category*
Smith, W. H. LARC/Boughner, R. E. 31-Atmos Sci
LARC/Callis, L. B.

NAG 5-108 **Washington University** **3003**
Search for interstellar water absorption
Period *Obligations*
10/01/80-09/30/81 **FY80: \$6,112** **TOTAL: \$6,112**
Prin Invest *NASA Tech Officer* *CASE Category*
Smith, W. H. GSFC/Corrigan, J. P. 11-Astronomy

NAG 9-7 **Washington University** **3004**
Lunar and planetary surface dynamics and early history
Period *Obligations*
02/01/80-01/31/81 **FY80: \$96,000** **TOTAL: \$96,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Hohenberg, C. M. JSC/Harris, J. W. 31-Atmos Sci
Walker, R. M.
Podosek, F. A.

NAS 2-10636 **Washington University** **3005**
The effect of spaceflight on the growth, mineralization and remodeling of the rhesus monkey skeleton
Period *Obligations*
05/15/80-07/31/82 **FY80: \$11,645** **TOTAL: \$11,645**
Prin Invest *NASA Tech Officer* *CASE Category*
Simmons, D. J. ARC/Holton, E. A. 59-Life Sci, NEC

NAS 8-27976 **Washington University** **3006**
Design, development and operation of a heavy nuclei experiment under the HEAO program
Period *Obligations*
06/16/72-09/30/81 **FY80: \$158,377** **TOTAL: \$735,131**
Prin Invest *NASA Tech Officer* *CASE Category*
Israel, M. H. MSFC/Stone, J. F. 11-Astronomy

NASW 3331 **Washington University** **3007**
Stimulating operational private sector use of Earth observation satellite information
Period *Obligations*
11/01/79-10/31/80 **FY80: \$100,000** **TOTAL: \$100,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Eastwood, L. F. HD-ET/Weinstein, R. H. 39-Env Sci, NEC
HD-ET/Tuyahov, A. J.

NCA 2-841001 **Washington University** **3008**
Investigations of Titan's atmosphere
Period *Obligations*
07/01/80-06/30/81 **FY80: \$7,104** **TOTAL: \$7,104**
Prin Invest *NASA Tech Officer* *CASE Category*
Smith, W. H. ARC/Cuzzi, J. N. 31-Atmos Sci
ARC/Giver, L. P.

NGL 26-008-065 **Washington University** **3009**
Lunar sample analysis
Period *Obligations*
02/01/71-01/31/81 **FY80: \$245,613** **TOTAL: \$2,787,515**
Prin Invest *NASA Tech Officer* *CASE Category*
Walker, R. M. JSC/Harris, J. W. 13-Physics

NGR 26-008-001 **Washington University** **3010**
Determination of characteristics of high altitude primary cosmic radiation at low latitudes
Period *Obligations*
09/01/61-10/31/80 **FY80: \$170,000** **TOTAL: \$1,835,540**
Prin Invest *NASA Tech Officer* *CASE Category*
Klarmann, J. HD-SC/Kaluzienski, L. J. 11-Astronomy
Israel, M. H. HD-SC/Opp, A. G.

NSG 1601 **Washington University** **3011**
Nondestructive evaluation of composite structures using Fourier analysis of ultrasonic signals
Period *Obligations*
03/15/79-03/14/81 **FY80: \$49,953** **TOTAL: \$99,768**
Prin Invest *NASA Tech Officer* *CASE Category*
Miller, J. G. LARC/Heyman, J. S. 13-Physics
ODonnell, M. LARC/Cantrell, J. H.

NSG 1640 **Washington University** **3012**
Application of adaptive finite element analysis of integrated design and analysis of aircraft structures
Period *Obligations*
10/01/79-12/31/80 **FY80:** **TOTAL: \$95,012**
Prin Invest *NASA Tech Officer* *CASE Category*
Szabo, B. A. LARC/Giles, G. L. 49-Engr, NEC
LARC/Rogers, J. L.

NSG 7016 **Washington University** **3013**
Lunar data analysis and synthesis program on lunar surface dynamics
Period *Obligations*
12/01/73-12/31/80 **FY80:** **TOTAL: \$496,156**
Prin Invest *NASA Tech Officer* *CASE Category*
Hohenberg, C. M. HD-SL/Quaide, W. L. 32-Geological Sci

NSG 7087 **Washington University** **3014**
Computerized analysis of Martian crater and aeolian feature data
Period *Obligations*
08/01/74-12/31/80 **FY80: \$118,579** **TOTAL: \$346,735**
Prin Invest *NASA Tech Officer* *CASE Category*
Arvidson, R. E. HD-SL/Boyce, J. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NASA'S UNIVERSITY PROGRAM MISSOURI (Continued)

NSG 7334 Washington University 3015
Planetary observations using a new Fabry-Perot interferometric method

Period	Obligations	
04/01/77-03/31/81	FY80: \$90,793	TOTAL: \$327,381
Prin Invest	NASA Tech Officer	CASE Category
Smith, W. H.	HD-SL/Brunk, W. E.	11-Astronomy
	HD-SL/Murphy, R. E.	

NSG 7372 Washington University 3016
Interferometric spectral observations of the interstellar medium in the near ultraviolet

Period	Obligations	
07/01/77-06/30/81	FY80: \$36,536	TOTAL: \$122,110
Prin Invest	NASA Tech Officer	CASE Category
Smith, W. H.	HD-SC/Weiler, E. J.	11-Astronomy
	HD-SC/Bogges, N. W.	

NSG 7545 Washington University 3017
Multispectral, topographic, and photogeologic studies of aeolian phenomena on Mars

Period	Obligations	
03/01/79-09/30/80	FY80: \$82,345	TOTAL: \$127,299
Prin Invest	NASA Tech Officer	CASE Category
Arvidson, R. E.	HD-SL/Boyce, J. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	

NSG 7578 Washington University 3018
Evolution of Mars

Period	Obligations	
03/01/79-09/30/80	FY80: \$64,672	TOTAL: \$102,394
Prin Invest	NASA Tech Officer	CASE Category
Goettal, K. A.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/Boyce, J. M.	

NSG 9055 Washington University 3019
Chemical studies of materials and processes in the lunar regolith and of lunar and terrestrial igneous differentiation

Period	Obligations	
02/01/77-01/31/81	FY80: \$134,305	TOTAL: \$507,800
Prin Invest	NASA Tech Officer	CASE Category
Haskin, L. A.	JSC/Harris, J. W.	32-Geological Sci

MONTANA

NAG 2-37 Montana State University 3020
A study of supersonic three-dimensional turbulent boundary layer

Period	Obligations	
05/01/80-04/30/81	FY80: \$35,952	TOTAL: \$35,952
Prin Invest	NASA Tech Officer	CASE Category
Demetriades, A.	ARC/Horstman, C. C.	41-Aero Engr
Reithman, T. C.		

NAS 9-16007 Montana State University 3021
Study to improve parameters for a winter wheat model

Period	Obligations	
01/01/80-12/31/80	FY80: \$77,800	TOTAL: \$77,800
Prin Invest	NASA Tech Officer	CASE Category
Caprio, J. M.	JSC/Ravet, F. W.	39-Env Sci, NEC

NEBRASKA

NAS 9-16162 Kearney State College 3022
In-cloud predictions for space shuttle launches

Period	Obligations	
08/25/80-12/31/81	FY80: \$31,000	TOTAL: \$31,000
Prin Invest	NASA Tech Officer	CASE Category
Glasser, M. E.	JSC/Patterson, A. E.	31-Atmos Sci

NAG 3-95 University of Nebraska - Lincoln 3023
Intercalated carbon fiber conductor for aerospace use

Period	Obligations	
09/01/80-08/31/81	FY80: \$24,000	TOTAL: \$24,000
Prin Invest	NASA Tech Officer	CASE Category
Woollam, J. A.	LERC/Riley, T. J.	45-Elec Engr
	LERC/Myers, I. T.	

NGL 28-004-020 University of Nebraska - Lincoln 3024
Applications of remote sensing in resource management in Nebraska

Period	Obligations	
04/20/72-04/30/83	FY80: \$100,000	TOTAL: \$875,000
Prin Invest	NASA Tech Officer	CASE Category
Carlson, M. P.	HD-ET/Vitale, J. A.	39-Env Sci, NEC

NGR 28-004-021 University of Nebraska - Lincoln 3025
Interaction of radiation with planetary gases

Period	Obligations	
02/23/73-06/30/80	FY80:	TOTAL: \$309,731
Prin Invest	NASA Tech Officer	CASE Category
Samson, J. A.	HD-SL/Murphy, R. E.	31-Atmos Sci

NGT 28-004-800 University of Nebraska - Lincoln 3026
The effect of moisture stress on multispectral radiation from agricultural crops

Period	Obligations	
09/01/80-08/31/81	FY80: \$11,200	TOTAL: \$11,200
Prin Invest	NASA Tech Officer	CASE Category
Blad, B. L.	JSC/Thompson, D.	39-Env Sci, NEC

NSG 5391 University of Nebraska - Lincoln 3027
Ultraviolet spectrophotometry of cepheids

Period	Obligations	
07/01/79-06/30/81	FY80: \$11,000	TOTAL: \$22,800
Prin Invest	NASA Tech Officer	CASE Category
Schmidt, E. G.	GSFC/Bogges, A.	11-Astronomy
Parsons, S. B.		

NASA'S UNIVERSITY PROGRAM NEVADA

NEVADA

NAG 2-14 Univ. of Nevada - Desert Res. Inst. 3028
Proposal to participate in the testing and evaluation of a total viral system

Period	Obligations	
01/01/80-12/31/80	FY80: \$29,824	TOTAL: \$29,824
Prin Invest	NASA Tech Officer	CASE Category
Smiley, V. N.	ARC/Johnson, R. D.	59-Life Sci, NEC

NAS 8-31441 Univ. of Nevada - Desert Res. Inst. 3029
Zero-8 cloud drop coalescence experiment

Period	Obligations	
04/21/75-10/31/78	FY80:	TOTAL: \$144,149
Prin Invest	NASA Tech Officer	CASE Category
Telford, J. W.	MSFC/Smith, R. E.	19-Phys Sci, NEC
	MSFC/Anderson, B. J.	

NAS 8-32975 Univ. of Nevada - Desert Res. Inst. 3030
Atmospheric Cloud Physics Laboratory cloud forming experiment for the first (ACPL) mission

Period	Obligations	
03/01/78-12/31/81	FY80 \$73,500	TOTAL \$342,400
Prin Invest	NASA Tech Officer	CASE Category
Kocmond, W. C.	MSFC/Fallon, R. A.	31-Atmos Sci
	MSFC/Smith, R. E.	

NAS 8-32977 Univ. of Nevada - Desert Res. Inst. 3031
Atmospheric Cloud Physics Laboratory ice crystal growth experiment

Period	Obligations	
03/01/78-12/31/81	FY80: \$20,000	TOTAL: \$85,000
Prin Invest	NASA Tech Officer	CASE Category
Hallett, J.	MSFC/Fallon, R. A.	31-Atmos Sci
	MSFC/Smith, R. E.	

NAS 8-33273 Univ. of Nevada - Desert Res. Inst. 3032
Complex aerosol nucleation experiment ACPL-2

Period	Obligations	
02/16/79-09/15/80	FY80 \$37,503	TOTAL: \$67,503
Prin Invest	NASA Tech Officer	CASE Category
Kocmond, W. C.	MSFC/Fallon, R. A.	31-Atmos Sci
	MSFC/Smith, R. E.	

NAS 8-33295 Univ. of Nevada - Desert Res. Inst. 3033
Design, fabricate, test and deliver one static diffusion chamber

Period	Obligations	
07/06/79-01/10/80	FY80:	TOTAL: \$35,535
Prin Invest	NASA Tech Officer	CASE Category
Hallett, J.	MSFC/Anderson, B. J.	31-Atmos Sci
	MSFC/Keller, V.	

NAS 8-33820 Univ. of Nevada - Desert Res. Inst. 3034
Cloud Condensation Nuclei Measurement Workshop

Period	Obligations	
05/23/80-05/22/81	FY80: \$99,956	TOTAL: \$99,956
Prin Invest	NASA Tech Officer	CASE Category
Kocmond, W. C.	MSFC/Smith, R. E.	31-Atmos Sci
	MSFC/Anderson, J. B.	

NSG 2140 University of Nevada - Las Vegas 3035
Prediction of unsteady airloads in two dimensional subsonic compressible flow

Period	Obligations	
06/01/76-06/01/81	FY80:	TOTAL: \$102,460
Prin Invest	NASA Tech Officer	CASE Category
Fromme, J. A.	ARC/Davis, S. S.	41-Aero Engr
Goldberg, M. A.		

NAS 8-32313 University of Nevada - Reno 3036
Study to perform preliminary experiments to evaluate particle generation and characterization techniques for zero gravity cloud physics experiments

Period	Obligations	
12/13/76-02/29/80	FY80:	TOTAL: \$150,447
Prin Invest	NASA Tech Officer	CASE Category
Kocmond, W. C.	MSFC/Schrick, B. J.	31-Atmos Sci
	MSFC/Smith, R. E.	

NSG 2291 University of Nevada - Reno 3037
Computations and turbulent flow modeling in support of helicopter rotor technology

Period	Obligations	
12/01/77-11/30/80	FY80: \$31,284	TOTAL: \$106,738
Prin Invest	NASA Tech Officer	CASE Category
Rose, W. C.	ARC/Presley, L. L.	41-Aero Engr
Kleppe, J. A.	ARC/Murphy, J. D.	

NEW HAMPSHIRE

NAG 3-13 Dartmouth College 3038
Ductility of polycrystalline nickel aluminum

Period	Obligations	
02/01/80-01/31/81	FY80: \$39,440	TOTAL: \$39,440
Prin Invest	NASA Tech Officer	CASE Category
Schulson, E. M.	LERC/Klopp, W. D.	47-Materials Engr

NAG 8-305 Dartmouth College 3039
Optical observations of High Energy Astronomical Observatory-B objects

Period	Obligations	
01/20/80-01/19/81	FY80: \$9,819	TOTAL: \$9,819
Prin Invest	NASA Tech Officer	CASE Category
Mock, D. E.	MSFC/Jones, J. B.	11-Astronomy
Buoy, F. I.		
Buff, J. S.		

**NASA'S UNIVERSITY PROGRAM
NEW HAMPSHIRE (Continued)**

NCC 5-22 **Dartmouth College** **3040**
An investigation of vegetation and other Earth resources parameters using LANDSAT and other remote sensing data
Period *Obligations*
02/01/80-01/31/81 **FY80: \$120,000 TOTAL: \$120,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Stoiber, R. E. GSFC/Ungar, S. G. 32-Geological Sci
Birnie, R. W.

NAGW 52 **University of New Hampshire** **3047**
Analysis of University of New Hampshire ATS-6 data multiple spacecraft studies
Period *Obligations*
02/01/80-01/31/81 **FY80: \$29,950 TOTAL: \$29,950**
Prin Invest *NASA Tech Officer* *CASE Category*
Moore, T. E. HD-ST/Hedin, A. E. 32-Geological Sci
HD-ST/Schmerling, E. R.

NSG 2397 **Dartmouth College** **3041**
Optical constants of transition metals
Period *Obligations*
07/01/79-06/30/81 **FY80: \$82,010 TOTAL: \$82,010**
Prin Invest *NASA Tech Officer* *CASE Category*
Christy, R. W. ARC/Cooper, D. M. 13-Physics

NAGW 76 **University of New Hampshire** **3048**
Theoretical studies group on the physics of the solar atmosphere and the solar wind
Period *Obligations*
06/01/80-05/31/81 **FY80: \$181,000 TOTAL: \$181,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Fisk, L. A. GSFC/Birmingham, T. J. 13-Physics
HD-ST/Newton, G. P.

NSG 3253 **Dartmouth College** **3042**
Thermomechanical effects in high speed seal rubs
Period *Obligations*
02/26/79-03/16/81 **FY80: \$30,400 TOTAL: \$58,900**
Prin Invest *NASA Tech Officer* *CASE Category*
Kennedy, F. E., Jr. LERC/Bill, R. C. 47-Materials Engr

NAS 5-23761 **University of New Hampshire** **3049**
Hardware phase of the solar gamma ray experiment for the solar maximum mission
Period *Obligations*
10/01/76-09/30/81 **FY80: \$200,000 TOTAL: \$3,396,726**
Prin Invest *NASA Tech Officer* *CASE Category*
Chupp, E. L. GSFC/Donley, J. L. 31-Atmos Sci

NSG 5014 **Dartmouth College** **3043**
Geological applications of ERTS data
Period *Obligations*
07/01/74-03/31/80 **FY80: TOTAL: \$1,019,605**
Prin Invest *NASA Tech Officer* *CASE Category*
Stoiber, R. E. GSFC/Ongar, S. G. 39-Env Sci, NEC
Birnie, R. W.

NAS 5-24328 **University of New Hampshire** **3050**
Data reduction and analysis of the environmental measurement experiment
Period *Obligations*
12/01/77-09/30/79 **FY80: TOTAL: \$67,500**
Prin Invest *NASA Tech Officer* *CASE Category*
Arnoldy, R. L. GSFC/Wende, C. D. 19-Phys Sci, NEC

NSG 5145 **Dartmouth College** **3044**
Investigation of volcanic gases and dust (aerosols) in the stratosphere
Period *Obligations*
12/01/76-01/31/80 **FY80: TOTAL: \$120,223**
Prin Invest *NASA Tech Officer* *CASE Category*
Self, S. GSFC/Hansen, J. E. 31-Atmos Sci
Decker, R. W.

NAS 5-24354 **University of New Hampshire** **3051**
Analysis and interpretation of Pioneer 10 and 11 data
Period *Obligations*
10/16/77-10/15/80 **FY80: \$27,489 TOTAL: \$73,737**
Prin Invest *NASA Tech Officer* *CASE Category*
Webber, W. R. GSFC/Trainor, J. H. 13-Physics

NSG 5348 **Dartmouth College** **3045**
Magnetopause studies using satellite data
Period *Obligations*
05/01/79-11/31/81 **FY80: TOTAL: \$30,416**
Prin Invest *NASA Tech Officer* *CASE Category*
Sonnerup, B. U. GSFC/Corrigan, J. P. 32-Geological Sci

NAS 5-25420 **University of New Hampshire** **3052**
Compton telescope experiment for the Gamma Ray Observatory definition phase
Period *Obligations*
11/21/78-12/31/80 **FY80: \$257,362 TOTAL: \$323,562**
Prin Invest *NASA Tech Officer* *CASE Category*
Lockwood, J. A. GSFC/Davis, M. A. 11-Astronomy
Schonfelder, V.

NSG 7292 **Dartmouth College** **3046**
Magnetopause-structure from satellite observations
Period *Obligations*
10/01/76-09/30/79 **FY80: TOTAL: \$40,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Sonnerup, B. HD-ST/King, J. H. 39-Env Sci, NEC
HD-ST/Schmerling, E. R.

NAS 5-25642 **University of New Hampshire** **3053**
Cosmic ray experiment data analysis and interpretation
Period *Obligations*
04/03/79-09/01/80 **FY80: TOTAL: \$8,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Fisk, L. A. GSFC/VonRosenvinge, T. T. 13-Physics

**NASA'S UNIVERSITY PROGRAM
NEW HAMPSHIRE (Continued)**

NCA 2-512901 **University of New Hampshire** **3054**
Development of mathematical models of specific closed ecosystem functions

Period	Obligations	
02/01/79-01/31/81	FY80: \$27,068	TOTAL: \$49,059
Prin Invest	NASA Tech Officer	CASE Category
Moore, B.	ARC/MacElroy, R. D.	21-Mathematics

NCC 2-27 **University of New Hampshire** **3055**
Controlled Ecology Life Support System Workshops: The biological problems and experimental program

Period	Obligations	
10/01/79-05/31/81	FY80: \$107,920	TOTAL: \$107,920
Prin Invest	NASA Tech Officer	CASE Category
Moore, B.	ARC/MacElroy, R. D.	51-Biological Sci

NGL 30-002-021 **University of New Hampshire** **3056**
Investigation and development of techniques for solar neutron and gamma ray detection

Period	Obligations	
02/28/86-01/31/81	FY80: \$130,000	TOTAL: \$1,457,365
Prin Invest	NASA Tech Officer	CASE Category
Chupp, E. L.	HD-SC/Gilman, D. A.	11-Astronomy
	HD-SC/Opp, A. G.	

NGR 30-002-052 **University of New Hampshire** **3057**
Research program in area of cosmic ray and X-ray astronomy

Period	Obligations	
02/12/70-09/30/80	FY80: \$117,185	TOTAL: \$1,197,185
Prin Invest	NASA Tech Officer	CASE Category
Webber, W. R.	HD-SC/Kaluzienski, L. J.	11-Astronomy
	HD-SC/Opp, A. G.	

NSG 5316 **University of New Hampshire** **3058**
Collaborative research of solar phenomena-solar maximum mission

Period	Obligations	
07/01/79-03/31/81	FY80: \$33,100	TOTAL: \$41,000
Prin Invest	NASA Tech Officer	CASE Category
Fisk, L. A.	GSFC/Donley, J. L.	31-Atmos Sci

NSG 6022 **University of New Hampshire** **3059**
Rocket study of auroral processes

Period	Obligations	
05/01/78-06/30/81	FY80: \$36,960	TOTAL: \$187,796
Prin Invest	NASA Tech Officer	CASE Category
Arnoldy, R. L.	WFC/Early, L. J.	19-Phys Sci, NEC
Kaufmann, R. L.	WFC/Pless, R. H.	

NSG 7411 **University of New Hampshire** **3060**
Theoretical studies in solar particle physics

Period	Obligations	
10/01/77-10/31/80	FY80: \$37,129	TOTAL: \$98,129
Prin Invest	NASA Tech Officer	CASE Category
Fisk, L. A.	HD-ST/Chipman, E.	13-Physics

NSG 7481 **University of New Hampshire** **3061**
Application of a double Compton telescope to measurements of the 1-15 MeV extra-terrestrial gamma rays

Period	Obligations	
03/01/78-02/28/81	FY80:	TOTAL: \$59,100
Prin Invest	NASA Tech Officer	CASE Category
Lockwood, J. A.	HD-SC/Gilman, D. A.	11-Astronomy
Webber, W. R.	HD-SC/Opp, A. G.	

NEW JERSEY

NCC 2-40 **College of Medicine & Dentistry - NJ** **3062**
To determine the rhythmicity of circulating catecholamines in normal and chronically bedrested subjects

Period	Obligations	
12/01/79-07/31/81	FY80: \$19,000	TOTAL: \$19,000
Prin Invest	NASA Tech Officer	CASE Category
Natelson, B. H.	ARC/Sharp, J. C.	56-Medical Sciences

NAS 5-26156 **New Jersey Institute of Technology** **3063**
Aerospace engineering symposium for high school students

Period	Obligations	
03/06/80-06/27/80	FY80: \$17,500	TOTAL: \$17,500
Prin Invest	NASA Tech Officer	CASE Category
Gant, M.	GSFC/Mundy, J. R.	41-Aero Engr
	GSFC/Chapman, J. W.	

NAG 3-8 **Princeton University** **3064**
Coupling of transport and chemical processes in catalytic combustion

Period	Obligations	
12/01/79-11/30/80	FY80: \$49,495	TOTAL: \$49,495
Prin Invest	NASA Tech Officer	CASE Category
Bracco, F. V.	LERC/Szaniszlo, A. J.	41-Aero Engr
Bruno, C.		
Walsh, P. M.		

NAG 5-48 **Princeton University** **3065**
Absorption measures of galactic halo gas

Period	Obligations	
05/01/80-04/30/81	FY80: \$12,568	TOTAL: \$12,568
Prin Invest	NASA Tech Officer	CASE Category
Cowie, L. L.	GSFC/Boggess, A.	11-Astronomy
York, D. G.		
Wu, C. C.		

NAG 8-306 **Princeton University** **3066**
Radiatively colling clusters

Period	Obligations	
03/01/80-02/28/81	FY80: \$3,499	TOTAL: \$3,499
Prin Invest	NASA Tech Officer	CASE Category
Cowie, L. L.	MSFC/Jones, J. B., Jr.	11-Astronomy
Fabian, A. C.		
Nulsen, P.		

NASA'S UNIVERSITY PROGRAM
NEW JERSEY (Continued)

NAG 8-363 **Princeton University** **3067**
Compact V-V groups of galaxies
Period *Obligations*
07/01/80-06/30/81 **FY80: \$1,400** **TOTAL: \$1,400**
Prin Invest *NASA Tech Officer* *CASE Category*
Bahcall, N. A. MSFC/Swearingen, J. C. 11-Astronomy

NAGW 10 **Princeton University** **3068**
Gaseous halos of galaxies
Period *Obligations*
11/01/79-10/31/81 **FY80: \$69,338** **TOTAL: \$69,338**
Prin Invest *NASA Tech Officer* *CASE Category*
York, D. G. HD-SC/Weiler, E. J. 11-Astronomy
HD-SC/Bogges, N. W.

NAS 1-15758 **Princeton University** **3069**
Navion modification and flight test support
Period *Obligations*
03/30/79-12/31/80 **FY80: \$52,870** **TOTAL: \$145,870**
Prin Invest *NASA Tech Officer* *CASE Category*
Stengel, R. F. LARC/Downing, D. R. 41-Aero Engr
LARC/Bryant, W. H.

NAS 1-15764 **Princeton University** **3070**
Investigation of flying qualities criteria for single pilot instrument flight operations
Period *Obligations*
04/05/79-12/15/80 **FY80:** **TOTAL: \$79,139**
Prin Invest *NASA Tech Officer* *CASE Category*
Stengel, R. F. LARC/Garren, J. F. 41-Aero Engr

NAS 5-1810 **Princeton University** **3071**
Design, development, fabrication, and testing of Orbiting Astronomical Observatory experiment
Period *Obligations*
06/08/72-12/01/78 **FY80:** **TOTAL: \$18,200,727**
Prin Invest *NASA Tech Officer* *CASE Category*
Spitzer, L., Jr. GSFC/Kupperman, J. E., Jr. 11-Astronomy

NAS 5-22360 **Princeton University** **3072**
Spectroscopy using the one meter ultraviolet optical telescope for Spacelab astronomy missions
Period *Obligations*
04/18/75-06/30/80 **FY80:** **TOTAL: \$19,277**
Prin Invest *NASA Tech Officer* *CASE Category*
Jenkins, E. B. GSFC/Wilson, L. 32-Geological Sci

NAS 5-23576 **Princeton University** **3073**
Orbital operations, data reduction and analysis, and OAO guest investigator program
Period *Obligations*
09/01/76-02/15/82 **FY80: \$703,372** **TOTAL: \$3,351,027**
Prin Invest *NASA Tech Officer* *CASE Category*
Spitzer, L., Jr. GSFC/Corrigan, J. P. 11-Astronomy

NAS 5-24486 **Princeton University** **3074**
Microwave and theoretical studies for cosmic background Explorer satellite
Period *Obligations*
03/01/78-05/01/81 **FY80: \$34,835** **TOTAL: \$122,912**
Prin Invest *NASA Tech Officer* *CASE Category*
Wilkinson, D. GSFC/Mather, J. C. 11-Astronomy
GSFC/Donohoe, M. J.

NAS 5-25084 **Princeton University** **3075**
Data and operations team leader for the space telescope project
Period *Obligations*
05/23/78-12/31/84 **FY80: \$89,033** **TOTAL: \$222,033**
Prin Invest *NASA Tech Officer* *CASE Category*
Groth, E. J. GSFC/Leckrone, D. S. 11-Astronomy

NAS 5-25896 **Princeton University** **3076**
Laser geodynamics experiment study of polar motion, plate rigidity and plate motions
Period *Obligations*
11/02/79-02/01/83 **FY80: \$76,300** **TOTAL: \$76,300**
Prin Invest *NASA Tech Officer* *CASE Category*
Morgan, W. J. GSFC/Stephanides, C. C. 32-Geological Sci
Smith, D. E.

NAS 5-26268 **Princeton University** **3077**
Design, development, fabrication of interstellar medium absorption profile spectrograph experiment
Period *Obligations*
08/21/80-08/31/83 **FY80: \$335,000** **TOTAL: \$335,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Jenkins, E. B. GSFC/Guidotti, J. 11-Astronomy
York, D. G. HD-SC/Weiler, E. J.

NAS 8-32614 **Princeton University** **3078**
Develop and test mathematical models of the three dimensional flow field and particle motions
Period *Obligations*
08/23/77-02/28/81 **FY80: \$30,000** **TOTAL: \$55,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Saville, D. A. MSFC/Bannister, T. C. 13-Physics
MSFC/Rhodes, P. H.

NAS 8-33345 **Princeton University** **3079**
Investigate accretion flows in the Perseus cluster galaxies
Period *Obligations*
02/14/79-02/11/81 **FY80:** **TOTAL: \$3,499**
Prin Invest *NASA Tech Officer* *CASE Category*
Cowie, L. L. MSFC/Jones, J. B., Jr. 11-Astronomy
Fabian, A. C.
Nulsen, P.

**NASA'S UNIVERSITY PROGRAM
NEW JERSEY (Continued)**

NCC 2-94 **Princeton University** **3080**
Aircraft position measurement using laser beacon systems
Period *Obligations*
08/15/80-02/28/81 **FY80: \$80,000** **TOTAL: \$80,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Miles, R. B. ARC/Biggers, J. 41-Aero Engr
Sweet, L. M. ARC/Morse, H. A.

NGL 31-001-005 **Princeton University** **3081**
Formation and stability of magnetogasdynamic front in a pitch discharge
Period *Obligations*
09/24/62-09/30/79 **FY80:** **TOTAL: \$2,422,912**
Prin Invest *NASA Tech Officer* *CASE Category*
Jahn, R. G. HD-RP/Lazar, J. 42-Astro Engr
Clark, K. F.

NGL 31-001-007 **Princeton University** **3082**
Theoretical and experimental studies of ultraviolet phenomena of astronomical interest and galactic gas dynamics
Period *Obligations*
05/06/63-03/31/82 **FY80: \$9,196** **TOTAL: \$2,077,178**
Prin Invest *NASA Tech Officer* *CASE Category*
Spitzer, L., Jr. HD-SC/Weiller, E. J. 11-Astronomy
HD-SC/Bogges, N. W.

NGL 31-001-252 **Princeton University** **3083**
Air traffic control technology
Period *Obligations*
11/15/71-01/31/83 **FY80:** **TOTAL: \$643,333**
Prin Invest *NASA Tech Officer* *CASE Category*
Stengel, R. F. LARC/Downing, D. R. 41-Aero Engr
Curtiss, H. C. LARC/MacE, W. D.
Sweet, L. M.

NSG 1253 **Princeton University** **3084**
Sound transmission analysis for determining interior sound levels
Period *Obligations*
11/01/75-12/31/80 **FY80: \$19,871** **TOTAL: \$157,432**
Prin Invest *NASA Tech Officer* *CASE Category*
Dowell, E. H. LARC/Mixson, J. S. 41-Aero Engr

NSG 1587 **Princeton University** **3085**
Command and stability augmentation techniques for aircraft with control saturation
Period *Obligations*
01/01/79-12/31/80 **FY80:** **TOTAL: \$25,230**
Prin Invest *NASA Tech Officer* *CASE Category*
Stengel, R. F. LARC/Schy, A. A. 41-Aero Engr
LARC/Young, J. W.

NSG 1630 **Princeton University** **3086**
Preliminary investigation of the external flow analysis for density measurements at high altitude
Period *Obligations*
07/01/79-10/31/80 **FY80: \$58,028** **TOTAL: \$75,055**
Prin Invest *NASA Tech Officer* *CASE Category*
Bienkowski, G. K. LARC/Jones, J. J. 41-Aero Engr
LARC/Jones, J. N.

NSG 2194 **Princeton University** **3087**
Transonic flow around wings, bodies and wing-body configurations
Period *Obligations*
11/01/76-10/31/80 **FY80: \$49,583** **TOTAL: \$212,524**
Prin Invest *NASA Tech Officer* *CASE Category*
Dowell, E. H. ARC/Davis, S. S. 41-Aero Engr
Williams, M. H.

NSG 2299 **Princeton University** **3088**
A comprehensive program of compressible turbulent boundary layer research
Period *Obligations*
02/01/78-01/31/81 **FY80: \$75,013** **TOTAL: \$225,005**
Prin Invest *NASA Tech Officer* *CASE Category*
Settles, G. S. ARC/Horstman, C. C. 41-Aero Engr
Bogdonoff, S. M. ARC/Marvin, J. G.

NSG 2366 **Princeton University** **3089**
Turbulence measurements in high speed flows by resonant fluorescence
Period *Obligations*
01/01/79-12/31/80 **FY80: \$47,234** **TOTAL: \$89,234**
Prin Invest *NASA Tech Officer* *CASE Category*
Miles, R. B. ARC/McKenzie, R. L. 13-Physics

NSG 3176 **Princeton University** **3090**
Mass driver development
Period *Obligations*
12/01/77-01/31/81 **FY80: \$175,000** **TOTAL: \$314,200**
Prin Invest *NASA Tech Officer* *CASE Category*
O'Neill, G. K. LERC/Kramer, E. H. 42-Astro Engr

NSG 3178 **Princeton University** **3091**
Internal combustion engine flame propagation and emissions: Small-scale turbulence modeling and large scale eddy resolution
Period *Obligations*
12/15/77-12/14/79 **FY80:** **TOTAL: \$199,343**
Prin Invest *NASA Tech Officer* *CASE Category*
Sirignano, W. A. LERC/Cassidy, J. F. 46-Mech Engr
Gany, A. LERC/Kempke, E. E.

NSG 3292 **Princeton University** **3092**
Unsteady transonic aerodynamics of cascades
Period *Obligations*
10/01/79-09/29/81 **FY80: \$34,070** **TOTAL: \$64,600**
Prin Invest *NASA Tech Officer* *CASE Category*
Dowell, E. H. LERC/Braun, W. H. 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
NEW JERSEY (Continued)**

NSG 5248 Princeton University 3093
Observational research on the IUE satellite
Period Obligations
03/01/78-02/29/80 FY80: TOTAL: \$20,312
Prin Invest NASA Tech Officer CASE Category
Jenkins, E. B. GSFC/Boggess, A. 11-Astronomy
Spitzer, L., Jr. GSFC/West, D. K.

NSG 5277 Princeton University 3094
Oblique magnetic focusing
Period Obligations
07/01/78-01/31/81 FY80: \$124,774 TOTAL: \$197,086
Prin Invest NASA Tech Officer CASE Category
York, D. G. GSFC/Donnelly, R. E. 13-Physics
Jenkins, E. B. GSFC/Johnson, A. G.

NSG 5382 Princeton University 3095
Velocity distribution of interstellar clouds in distant spiral arms
and in magellanic clouds
Period Obligations
07/01/79-06/31/81 FY80: \$14,415 TOTAL: \$20,215
Prin Invest NASA Tech Officer CASE Category
York, D. G. GSFC/Boggess, A. 11-Astronomy
Songaila, A.
Boksenberg, A.

NSG 5415 Princeton University 3096
Study of the fluctuations in the cosmic X-ray background
Period Obligations
09/14/79-06/30/81 FY80: \$11,498 TOTAL: \$11,498
Prin Invest NASA Tech Officer CASE Category
Turners, E. L. GSFC/Corrigan, J. P. 11-Astronomy

NSG 7053 Princeton University 3097
Theoretical and laboratory planetary physics
Period Obligations
04/01/74-01/31/81 FY80: TOTAL: \$82,982
Prin Invest NASA Tech Officer CASE Category
Danielson, R. E. HD-SL/Brunk, W. F. 11-Astronomy

NSG 7080 Princeton University 3098
Study of elastic wave propagation in the Moon
Period Obligations
07/01/74-02/28/80 FY80: TOTAL: \$180,288
Prin Invest NASA Tech Officer CASE Category
Phinney, R. A. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NSG 7256 Princeton University 3099
Research in extragalactic astrophysics
Period Obligations
07/01/76-12/31/80 FY80: \$13,046 TOTAL: \$41,434
Prin Invest NASA Tech Officer CASE Category
Bahcall, N. A. HD-SC/Weiler, E. J. 11-Astronomy
HD-SC/Boggess, N. W.

NSG 7288 Princeton University 3100
The effect of gravity and weightlessness on the development and
regeneration of the giant Coenocyte Caulerpa
Period Obligations
10/01/76-09/30/80 FY80: \$55,000 TOTAL: \$185,000
Prin Invest NASA Tech Officer CASE Category
Jacobs, W. P. HD-SB/Halstead, T. W. 51-Biological Sci
HD-SB/Geib, D. S.

NSG 7302 Princeton University 3101
New radiometers for balloon 3 K isotropy experiment
Period Obligations
11/15/76-12/31/80 FY80: \$28,487 TOTAL: \$107,808
Prin Invest NASA Tech Officer CASE Category
Wilkinson, D. HD-SC/Boggess, N. W. 11-Astronomy
HD-SC/Weiler, E. J.

NSG 7568 Princeton University 3102
The geomorphic role of water ice on Mars
Period Obligations
03/15/79-12/31/80 FY80: \$20,052 TOTAL: \$50,362
Prin Invest NASA Tech Officer CASE Category
Judson, S. HD-SL/Boyce, J. M. 32-Geological Sci

NSG 7600 Princeton University 3103
Support of International Astronomical Union Colloquium No. 54
Scientific Research with Space Telescopes
Period Obligations
04/01/79-09/30/80 FY80: TOTAL: \$11,480
Prin Invest NASA Tech Officer CASE Category
Spitzer, L., Jr. HD-SC/Roman, N. G. 11-Astronomy
HD-SC/Weiler, E. J.

NSG 7602 Princeton University 3104
The origin of maghemite on Mars
Period Obligations
07/01/79-06/30/81 FY80: \$59,958 TOTAL: \$99,895
Prin Invest NASA Tech Officer CASE Category
Hargraves, R. B. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/Boyce, J. M.

NSG 7618 Princeton University 3105
Photon counting image sensor development for astronomical
applications
Period Obligations
07/01/79-06/30/81 FY80: \$103,586 TOTAL: \$197,586
Prin Invest NASA Tech Officer CASE Category
Jenkins, E. B. HD-SC/Weiler, E. J. 11-Astronomy
HD-SC/Boggess, N. W.

NAG 5-78 Rutgers University - New Brunswick 3106
Observation of ultraviolet emission from globular clusters
Period Obligations
06/01/80-05/31/81 FY80: \$12,500 TOTAL: \$12,500
Prin Invest NASA Tech Officer CASE Category
Matlisky, T. GSFC/Boggess, A. 11-Astronomy

NASA'S UNIVERSITY PROGRAM
NEW JERSEY (Continued)

NAG 8-309 Rutgers University - New Brunswick 3107
Investigation of X-ray emission from broad-line radio galaxies using HEAO-2 and a search for X-ray emission from nearby quasi stellar objects using High Energy Astronomical Observatory-2

Period	Obligations	
02/25/80-02/24/81	FY80: \$15,000	TOTAL: \$15,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Matilsky, T.	MSFC/Jones, J. B.	11-Astronomy

NAG 8-328 Rutgers University - New Brunswick 3108
Search for decrease in radio pulsar X-ray luminosity during radio nulls

Period	Obligations	
03/01/80-02/28/81	FY80: \$8,300	TOTAL: \$8,300
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cheng, A. F.	MSFC/Jones, J. B.	11-Astronomy

NSG 3280 Rutgers University - New Brunswick 3109
The physics of turbulent flow

Period	Obligations	
06/01/79-05/31/81	FY80: \$2,600	TOTAL: \$17,600
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Johnson, J. A.	LERC/Claus, R. W.	41-Aero Engr

NSG 5195 Rutgers University - New Brunswick 3110
Investigation of the detailed light curves using SAS-3

Period	Obligations	
08/01/77-01/31/79	FY80:	TOTAL: \$10,690
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Matilsky, T.	GSFC/Kupperman, J. F., Jr.	11-Astronomy

NSG 7327 Rutgers University - New Brunswick 3111
Research and studies of metal silicate relationships in howardite breccias

Period	Obligations	
02/01/77-01/31/81	FY80: \$32,047	TOTAL: \$113,131
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hewins, R. H.	HD-SL/French, B. M.	32-Geological Sci
	HD-SL/Juaide, W. L.	

NSG 7601 Rutgers University - New Brunswick 3112
Convection in spherical shells

Period	Obligations	
03/15/79-09/30/81	FY80: \$20,000	TOTAL: \$37,572
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zebib, A.	HD-SL/Boyce, J. M.	32-Geological Sci

NSG 9065 Rutgers University - New Brunswick 3113
Flow behavior of extraterrestrial materials

Period	Obligations	
02/01/78-01/31/81	FY80: \$21,920	TOTAL: \$48,335
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Klein, L. C.	JSC/Harris, J. W.	32-Geological Sci

NAG 3-47 Stevens Institute of Technology 3114
The influence of gyroscopic forces of the dynamic behavior and flutter of rotating blades

Period	Obligations	
06/01/80-05/31/81	FY80: \$49,220	TOTAL: \$49,220
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sisto, F.	LERC/Kiraly, L. J.	46-Mech Engr
Chang, A.	LERC/Johns, R. H.	

NSG 1619 Stevens Institute of Technology 3115
Free stream disturbances, continuum eigenfunctions boundary layer instability and transition

Period	Obligations	
05/16/79-08/15/80	FY80:	TOTAL: \$25,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Salwen, H.	LARC/Bushnell, D. M.	41-Aero Engr
	LARC/Hefner, J. N.	

NSG 3180 Trenton State College 3116
Analytical modeling of flash-back phenomena

Period	Obligations	
01/01/78-11/05/79	FY80:	TOTAL: \$35,377
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Feng, C. C.	LERC/Marek, C. J.	46-Mech Engr

NEW MEXICO

NAG 8-347 New Mexico Institute of Mining & Tech 3117
Observation of Antares system soft X-ray observations from High Energy Astronomical Observatory-2 and the size and structure of the corona of AR lacertae

Period	Obligations	
04/15/80-04/14/81	FY80: \$16,536	TOTAL: \$16,536
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gibson, D. M.	MSFC/Jones, J. B.	11-Astronomy

NAS 8-33341 New Mexico Institute of Mining & Tech 3118
The size and structure of the corona of RT lacertae and the X-ray variability of HR1099

Period	Obligations	
02/22/79-05/21/80	FY80:	TOTAL: \$12,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gibson, D. M.	MSFC/Jones, J. B.	11-Astronomy

NAS 8-33817 New Mexico Institute of Mining & Tech 3119
Night-time/day-time orbital survey of lightning experiment support

Period	Obligations	
04/01/80-06/30/81	FY80: \$13,500	TOTAL: \$13,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Brooks, M.	MSFC/Vaughan, O. H.	31-Atmos Sci
	MSFC/Anderson, B. J.	

NASA'S UNIVERSITY PROGRAM
NEW MEXICO (Continued)

NCA 5-69 New Mexico Institute of Mining & Tech 3120
 Cometary observations and research activities

Period	Obligations	
08/23/76-12/31/80	FY80: \$5,000	TOTAL: \$5,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moore, E. P.	GSFC/Hobbs, R. W.	11-Astronomy

NAS 8-33764 New Mexico State University - Las Cruces 3127
 Domestic hot water system test support

Period	Obligations	
11/30/79-11/29/80	FY80: \$14,694	TOTAL: \$14,694
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Available, U. N.	MSFC/Thomas, C. N.	99-Multi-Discip

NCA 5-71 New Mexico Institute of Mining & Tech 3121
 Cometary and astrophysical research activities

Period	Obligations	
11/01/76-09/30/80	FY80: \$20,000	TOTAL: \$80,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moore, E. P.	GSFC/Hobbs, R. W.	11-Astronomy

NAS 9-16092 New Mexico State University - Las Cruces 3128
 Development of antenna specifications for the Advanced Synthetic Aperture Radar (ASAR) project

Period	Obligations	
02/01/80-02/01/81	FY80: \$35,000	TOTAL: \$35,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carver, K.	JSC/Krishen, K.	13-Physics

NCA 5-81 New Mexico Institute of Mining & Tech 3122
 Analysis of solar wind velocity international solar polar mission

Period	Obligations	
08/29/79-09/30/80	FY80: \$5,800	TOTAL: \$5,800
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moore, E. P.	GSFC/Brandt, J.	11-Astronomy

NAS 9-95497 New Mexico State University - Las Cruces 3129
 Feasibility study to determine if a dual polarized L-band antenna for MW systems can be developed using microstrip and honeycomb techniques

Period	Obligations	
07/09/79-06/30/80	FY80: \$6,781	TOTAL: \$20,550
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carver, K.	JSC/Fenner, R. G.	39-Env Sci, NEC

NAG 2-23 New Mexico State University - Las Cruces 3123
 Numerical methods for phase plane problems in ordinary differential equations

Period	Obligations	
03/01/80-02/28/81	FY80: \$7,074	TOTAL: \$7,074
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McLeod, R. J.	ARC/Chapman, G. T.	21-Mathematics

NAS 9-95504 New Mexico State University - Las Cruces 3130
 Preparation of NASA White Sands Test Facility capabilities brochure

Period	Obligations	
04/10/80-07/31/80	FY80: \$19,990	TOTAL: \$19,990
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Guard, K.	JSC/Gomez, L. R.	99-Multi-Discip

NAS 5-24241 New Mexico State University - Las Cruces 3124
 Sounding rocket support

Period	Obligations	
08/01/77-08/31/80	FY80: \$1,135,196	TOTAL: \$3,829,272
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lawrence, H.	GSFC/Pincus, B. R.	49-Engr, NEC
Connell, H.		

NGL 32-003-001 New Mexico State University - Las Cruces 3131
 Photographic patrol and study of physical conditions on the Moon and planets

Period	Obligations	
04/15/61-06/30/81	FY80: \$60,220	TOTAL: \$2,019,021
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Beebe, R. F.	HD-SL/Brunk, W. E.	11-Astronomy
	HD-SL/Murphy, R. E.	

NAS 5-26332 New Mexico State University - Las Cruces 3125
 Field and analytical engineering support for the sounding rocket program

Period	Obligations	
09/10/80-09/09/83	FY80: \$248,736	TOTAL: \$248,736
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lawrence, H.	GSFC/Pincus, B. R.	49-Engr, NEC
Connell, H.	GSFC/Cameron, J. W.	

NSG 7622 New Mexico State University - Las Cruces 3132
 Speed-dependent collision effects on radar back-scattering from the ionosphere

Period	Obligations	
09/01/79-08/31/81	FY80: \$38,000	TOTAL: \$65,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Theimer, O. H.	HD-ST/Mayr, H. G.	19-Phys Sci, NEC
	HD-ST/Schmerling, E. R.	

NAS 6-3087 New Mexico State University - Las Cruces 3126
 Pulse code modulation decoder, model GIA5-2

Period	Obligations	
03/11/80-07/16/80	FY80: \$12,271	TOTAL: \$12,271
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gammill, B. G.	WFC/West, W. W.	49-Engr, NEC

NAG 1-95 University of New Mexico 3133
 Study of the photovoltaic effect in thin film barium titanate

Period	Obligations	
08/25/80-08/24/81	FY80: \$44,317	TOTAL: \$44,317
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Grantemann, W. W.	LARC/Hayes, P. J.	45-Elec Engr

NASA'S UNIVERSITY PROGRAM
NEW MEXICO (Continued)

NASW 2936 **University of New Mexico** **3134**
Operation of NASA's Industrial Applications Center
Period *Obligations*
07/01/76-09/30/80 FY80: \$250,000 TOTAL: \$1,048,864
Prin Invest NASA Tech Officer CASE Category
Unavailable HD-ET/Bivins, R. G. 99-Multi-Discip

NAS13-109 **University of New Mexico** **3135**
Conduct short courses in remote sensing
Period *Obligations*
03/29/79-01/28/80 FY80: TOTAL: \$15,931
Prin Invest NASA Tech Officer CASE Category
Morain, S. R. NSTL/Atwell, B. H. 32-Geological Sci

NGL 32-004-011 **University of New Mexico** **3136**
Comparative study of lunar craters and terrestrial volcano-tectonic depressions in rhyolite ash-flow plateaus
Period *Obligations*
10/12/64-12/31/79 FY80: TOTAL: \$395,800
Prin Invest NASA Tech Officer CASE Category
Elston, W. F. HD-SL/Dworknik, S. E. 32-Geological Sci

NGL 32-004-063 **University of New Mexico** **3137**
Lunar sample analysis
Period *Obligations*
01/06/71-01/31/81 FY80 \$72,915 TOTAL \$917,843
Prin Invest NASA Tech Officer CASE Category
Keil, K. JSC/Harris, J. W. 12-Chemistry

NGL 32-004-064 **University of New Mexico** **3138**
Mineralogy and chemistry of polymict-brecciated stone meteorites
Period *Obligations*
06/14/71-02/28/81 FY80 \$64,022 TOTAL: \$657,349
Prin Invest NASA Tech Officer CASE Category
Keil, K. HD-SL/French, B. M. 32-Geological Sci
Fodor, R. V. HD-SL/Quaide, W. L.
Taylor, G. J.

NGL 32-004-062 **University of New Mexico** **3139**
Search for evidence of dynamic process
Period *Obligations*
06/22/70-04/30/81 FY80: \$26,983 TOTAL: \$233,073
Prin Invest NASA Tech Officer CASE Category
Elston, W. F. HD-SL/Boyce, J. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NGT 32-004-770 **University of New Mexico** **3140**
A preoperative education program
Period *Obligations*
07/25/77-07/24/81 FY80: \$12,000 TOTAL: \$46,208
Prin Invest NASA Tech Officer CASE Category
Ettler, D. M. HD-LU/Pohly, J. G. 49-Engr, NEC
HD-U/Jenkins, H. G.

NSG 7579 **University of New Mexico** **3141**
Chemical weathering on Mars
Period *Obligations*
03/01/79-09/30/80 FY80: \$52,347 TOTAL: \$79,577
Prin Invest NASA Tech Officer CASE Category
Keil, K. HD-SL/Quaide, W. L. 31-Atmos Sci
HD-SL/Boyce, J. M.

NEW YORK

NAG 1-44 **Brooklyn College** **3142**
Photoelectrolysis of water with surface modified metal oxide electrodes
Period *Obligations*
03/01/80-02/28/81 FY80: \$32,720 TOTAL: \$32,720
Prin Invest NASA Tech Officer CASE Category
Tomkiewicz, M. LARC/Byvik, C. E. 19-Phys Sci, NEC
Aronson, S. LARC/Conway, E. J.

NSG 1378 **Brooklyn College** **3143**
Research in medium and high energy atomic physics theory
Period *Obligations*
12/03/76-06/30/80 FY80: TOTAL: \$42,170
Prin Invest NASA Tech Officer CASE Category
Franco, V. LARC/Meador, W. E. 13-Physics
Thomas, B. K. LARC/Wilson, J. W.

NAG 1-6 **City College of New York** **3144**
An adaptive learning control system for large flexible space structures
Period *Obligations*
11/01/79-10/31/80 FY80: \$40,593 TOTAL: \$40,593
Prin Invest NASA Tech Officer CASE Category
Thau, F. E. LARC/Montgomery, R. C. 42-Astro Engr

NAGW 22 **City College of New York** **3145**
A study of the Martian fretted terrains-lightly cratered terrains boundary
Period *Obligations*
01/01/80-12/31/80 FY80: \$28,548 TOTAL: \$28,548
Prin Invest NASA Tech Officer CASE Category
Weiss, D. HD-SL/Boyce, J. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NAGW 59 **City College of New York** **3146**
Equilibrium condensation of planetary materials
Period *Obligations*
04/01/80-03/31/81 FY80: \$13,540 TOTAL: \$13,540
Prin Invest NASA Tech Officer CASE Category
Saxena, S. K. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAS 1-15669 City College of New York 3147
Verification Seasat wind speed and direction objectives and demonstration of global capability for extratropical cyclones
Period Obligations
02/27/79-06/01/81 FY80: \$141,375 TOTAL: \$221,375
Prin Invest NASA Tech Officer CASE Category
Pierson, W. J. LARC/Schroeder, L. C.
Salfi, R. K. LARC/Jones, W. L. 33-Oceanography

NAS 9-13940 City College of New York 3148
Communication systems analysis study
Period Obligations
04/04/74-12/01/80 FY80: \$40,000 TOTAL: \$279,892
Prin Invest NASA Tech Officer CASE Category
Schilling, D. L. JSC/Land, C. K. 45-Elec Engr
Scheinberg, N.
Davidovici, S.

NGL 33-013-040 City College of New York 3149
Theoretical research in astrophysics and astronomy
Period Obligations
04/23/69-11/30/82 FY80: \$20,000 TOTAL: \$414,000
Prin Invest NASA Tech Officer CASE Category
Arons, M. GSFC/Canuto, V. 11-Astronomy

NGR 33-013-086 City College of New York 3150
Models for large scale meteorological prediction experiments
Period Obligations
10/01/73-01/31/81 FY80: \$50,733 TOTAL: \$321,666
Prin Invest NASA Tech Officer CASE Category
Spar, J. GSFC/Hansen, J. E. 31-Atmos Sci

NSG 1485 City College of New York 3151
Theory of strong turbulence by renormalization into repeated-cascade
Period Obligations
01/15/78-01/14/81 FY80: TOTAL: \$53,398
Prin Invest NASA Tech Officer CASE Category
Tchen, C. M. LARC/Hess, R. V. 39-Env Sci, NEC
LA 'C/Maestrello, L

NSG 2348 City College of New York 3152
Theoretical problems of spiral galaxies
Period Obligations
11/01/78-11/30/80 FY80: \$33,835 TOTAL: \$73,761
Prin Invest NASA Tech Officer CASE Category
Yuan, C. ARC/Black, D. C. 11-Astronomy
ARC/Smith, B. F.

NSG 3174 City College of New York 3153
Analysis of turbulent coaxial flow with international energy generation
Period Obligations
10/03/77-01/31/80 FY80: TOTAL: \$78,583
Prin Invest NASA Tech Officer CASE Category
Weinstein, H. LERC/Braun, W. H. 49-Engr, NEC

NSG 5013 City College of New York 3154
Efficient processing of video signals
Period Obligations
06/15/74-10/31/80 FY80: \$66,000 TOTAL: \$261,000
Prin Invest NASA Tech Officer CASE Category
Schilling, D. L. LERC/Barnes, S. P. 45-Elec Engr

NSG 5334 City Univ of NY - Grad School & Univ Cen 3155
Relativistic effects in atoms
Period Obligations
02/01/79-01/31/81 FY80: \$20,198 TOTAL: \$40,133
Prin Invest NASA Tech Officer CASE Category
Mittleman, M. H. GSFC/Temkin, A. 13-Physics

NAS 8-32944 Clarkson College of Technology 3156
Experiment for materials processing in space, physical phenomena in containerless glass processing
Period Obligations
02/23/78-02/23/83 FY80: \$117,000 TOTAL: \$372,502
Prin Invest NASA Tech Officer CASE Category
Subramanian, R. S. MSFC/Williams, J. R. 13-Physics
Cole, R. MSFC/Johnson, J. L.

NSG 1572 Clarkson College of Technology 3157
Convection effects during bridgman growth of semiconductors
Period Obligations
12/01/78-04/09/81 FY80: \$59,794 TOTAL: \$103,775
Prin Invest NASA Tech Officer CASE Category
Carlson, F. LARC/Fripp, A. L. 13-Physics
LARC/Crouch, R. K.

NSG 3191 Clarkson College of Technology 3158
Design of a microprocessor-based high speed space borr message switch
Period Obligations
04/15/78-05/31/80 FY80: TOTAL: \$76,394
Prin Invest NASA Tech Officer CASE Category
Arozullah, M. LERC/Rotnem, J. O. 45-Elec Engr

NSG 9059 Clarkson College of Technology 3159
Light flash phenomena induced by HZE particles
Period Obligations
09/01/77-02/29/80 FY80: TOTAL: \$34,114
Prin Invest NASA Tech Officer CASE Category
McNulty, P. JSC/Barnes, C. M. 13-Physics
Pease, V.

NAG 3-15 Columbia University 3160
A preliminary in viva study of the effects of electric stimulation on bone ingrowth to textured surfaces of orthopedic implants
Period Obligations
12/01/79-11/30/80 FY80: \$25,412 TOTAL: \$25,412
Prin Invest NASA Tech Officer CASE Category
Pawluk, R. J. LERC/Wintucky, E. G. 56-Medical Sciences
Bassett, C. A.

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAG 3-57 **Columbia University** **3161**
The role of cobalt in nickel base super alloys
Period *Obligations*
07/01/80-06/30/81 **FY80: \$114,987 TOTAL: \$114,987**
Prin Invest *NASA Tech Officer* *CASE Category*
Tien, J. K. LERC/Stephens, J. R. 47-Materials Engr

NAS 5-24457 **Columbia University** **3167**
Solar flare X-ray polarimeter experiment
Period *Obligations*
02/22/78-10/31/81 **FY80: \$29,355 TOTAL: \$921,610**
Prin Invest *NASA Tech Officer* *CASE Category*
Novick, R. GSFC/Eiband, A. M. 11-Astronomy
Chanan, G. A.

NAG 5-33 **Columbia University** **3162**
Research relative to the effect of subduction zones on the low-order of the geoid
Period *Obligations*
04/01/80-03/31/81 **FY80: \$30,000 TOTAL: \$30,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Haxby, W. F. GSFC/Holweck, E. C 32-Geological Sci
Cochran, J. R. GSFC/Smith, D. E.

NAS 5-25422 **Columbia University** **3168**
Technical services operations and materials for the acquisitions, processing and cataloging of books, periodicals and other literature for Goddard Institute for Space Studies (GISS)
Period *Obligations*
04/01/79-09/30/80 **FY80: \$65,000 TOTAL: \$92,533**
Prin Invest *NASA Tech Officer* *CASE Category*
Yavarkovsky, J. GSFC/Jennings, N. 99-Multi-Discip

NAG 5-98 **Columbia University** **3163**
Research of the relationship between gravity and bathymetry in the Pacific Ocean
Period *Obligations*
10/01/80-09/30/81 **FY80: \$50,000 TOTAL: \$50,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Watts, T. S. GSFC/Harper, E. L. 32-Geological Sci
GSFC/Smith, D. E.

NAS 5-25759 **Columbia University** **3169**
Next generation communication satellites: Multiple access and network studies
Period *Obligations*
07/09/79-09/08/80 **FY80: TOTAL: \$69,493**
Prin Invest *NASA Tech Officer* *CASE Category*
Stern, T. E. LERC/Leroy, B. 31-Atmos Sci
Schwartz, M.

NAGW 18 **Columbia University** **3164**
Reduction and analysis of stellar X-ray spectral and polarimetric data obtained with the Columbia University Orbiting Solar Observatory 8
Period *Obligations*
10/01/79-10/30/80 **FY80: \$30,000 TOTAL: \$30,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Novick, R. HD-SC/Kaluzienski, L. J. 11-Astronomy
HD-SC/Opp, A. G.

NAS 5-25891 **Columbia University** **3170**
Analysis of intermediate wavelength anomalies over the oceans in magnetic fields monitor satellite and sea surface data
Period *Obligations*
02/01/80-05/31/81 **FY80: \$81,329 TOTAL: \$81,329**
Prin Invest *NASA Tech Officer* *CASE Category*
Labreque, J. GSFC/Oseroff, H. 31-Atmos Sci

NAS 3-22464 **Columbia University** **3165**
Study contract for multiple access and network studies for next generation communications satellites
Period *Obligations*
08/15/80-08/14/81 **FY80: \$88,769 TOTAL: \$88,769**
Prin Invest *NASA Tech Officer* *CASE Category*
Meadows, H. LERC/Leroy, B. 45-Elec Engr
Schwarz, M.

NAS 5-26041 **Columbia University** **3171**
Generate an investigation development plan and establish the preliminary interfaces between the space transportation system/Spacelab and instrument for the wide-band germanium X-ray spectrometer
Period *Obligations*
02/15/80-12/31/80 **FY80: \$119,317 TOTAL: \$119,317**
Prin Invest *NASA Tech Officer* *CASE Category*
Novick, R. GSFC/Underwood, C. 11-Astronomy

NAS 5-24152 **Columbia University** **3166**
Data reduction and analysis of graphite crystal X-ray spectrometer OSO-1
Period *Obligations*
10/01/77-06/30/80 **FY80: TOTAL: \$355,351**
Prin Invest *NASA Tech Officer* *CASE Category*
Novick, R. GSFC/Gemmell, J. D. 11-Astronomy
GSFC/Kupperian, J. E., Jr.

NAS 8-30753 **Columbia University** **3172**
Design, development and operation of the HEAO mission B X-ray telescope experiment
Period *Obligations*
06/01/74-09/30/81 **FY80: \$238,000 TOTAL: \$616,451**
Prin Invest *NASA Tech Officer* *CASE Category*
Novick, R. MSFC/Jones, J. B. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAS 8-32212 Columbia University 3173
Space vehicle control system
Period Obligations
09/01/76-10/31/79 FY80: TOTAL: \$20,054
Prin Invest NASA Tech Officer CASE Category
Likins, P. A. MSFC/Seltzer, S. M. 19-Phys Sci, NEC
Longman, R. MSFC/Shelton, H. L.

NAS 8-33085 Columbia University 3174
A search for collapsed companions among selected OB stars
Period Obligations
06/23/78-02/22/79 FY80: TOTAL: \$7,000
Prin Invest NASA Tech Officer CASE Category
Novick, R. MSFC/Dailey, C. C. 11-Astronomy
Helfand, D. J.

NAS 8-33378 Columbia University 3175
Acoustic and gravity waves in the neutral atmosphere and the ionosphere
Period Obligations
04/18/79-05/17/81 FY80: \$77,000 TOTAL: \$154,618
Prin Invest NASA Tech Officer CASE Category
Balachandran, N. K. MSFC/West, G. S. 31-Atmos Sci
MSFC/Torkar, J. E.

NCC 1-5 Columbia University 3176
The influence of auditory inputs on simulated flight operations
Period Obligations
04/15/79-12/31/80 FY80: \$76,780 TOTAL: \$115,066
Prin Invest NASA Tech Officer CASE Category
Galanter, E. LARC/Harris, R. L., Sr. 41-Aero Engr

NCC 5-3 Columbia University 3177
Research of the relationship between gravity and bathymetry in the Pacific Ocean
Period Obligations
04/01/79-09/30/80 FY80: TOTAL: \$50,000
Prin Invest NASA Tech Officer CASE Category
Watts, A. B. GSFC/Smith, D. E. 32-Geological Sci
McKenzie, D. P.

NCC 5-16 Columbia University 3178
Multidisciplinary research in space science
Period Obligations
05/15/79-06/30/81 FY80: \$511,000 TOTAL: \$835,506
Prin Invest NASA Tech Officer CASE Category
Broecker, W. S. GSFC/Thaddeus, P. 31-Atmos Sci
Flynn G.

NCC 5-20 Columbia University 3179
Application of digital analysis of multi-spectral scanner to agro-environmental studies
Period Obligations
01/01/80-12/80 FY80: \$79,941 TOTAL: \$79,941
Prin Invest NASA Tech Officer CASE Category
Lewis, R. A. GSFC/Ungar, S. G. 32-Geological Sci
Goward, S. N.

NGR 33-008-102 Columbia University 3180
Research in X-ray astronomy
Period Obligations
01/30/68-01/31/81 FY80: \$250,000 TOTAL: \$2,458,342
Prin Invest NASA Tech Officer CASE Category
Novick, R. GSFC/Guidotti, J. 11-Astronomy
Long, K. S. HD-SC/Opp, A. G.
Helfand, D. J.

NGR 33-008-146 Columbia University 3181
Study of strain buildup, release and earthquake prediction
Period Obligations
02/09/71-04/30/81 FY80: \$90,056 TOTAL: \$645,542
Prin Invest NASA Tech Officer CASE Category
Johnson, T. L. GSFC/Smith, D. E. 19-Phys Sci, NEC
Scholz, C. H.
Bilham, R. G.

NSG 1450 Columbia University 3182
Aircraft cabin noise, prediction and optimization
Period Obligations
09/06/77-01/05/81 FY80: TOTAL: \$160,712
Prin Invest NASA Tech Officer CASE Category
Vaicaitis, R. LARC/Mixson, J. S. 41-Aero Engr
LARC/Stephens, D. G.

NSG 1550 Columbia University 3183
Time-of-day effects on the numerical representation of community response to noise
Period Obligations
07/01/78-06/30/81 FY80: \$70,752 TOTAL: \$169,142
Prin Invest NASA Tech Officer CASE Category
Galanter, E. LARC/Stephens, D. G. 49-Engr, NEC
LARC/Cievenson, S. A.

NSG 5072 Columbia University 3184
Surface deformation and elasticity studies
Period Obligations
08/01/75-01/31/79 FY80: TOTAL: \$97,766
Prin Invest NASA Tech Officer CASE Category
Bilham, R. G. GSFC/Allenby, R. J. 32-Geological Sci
GSFC/Mead, G. D.

NSG 5080 Columbia University 3185
Application of LANDSAT data to agricultural resource problems
Period Obligations
08/15/75-12/31/79 FY80: \$59 TOTAL: \$304,473
Prin Invest NASA Tech Officer CASE Category
High, C. J. GSFC/Ungar, S. G. 32-Geological Sci
Goward, S. N.

**NASA'S UNIVERSITY PROGRAM
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NSG 5163 Columbia University 3186
Multidisciplinary research in the space studies
Period Obligations
03/01/77-09/30/79 FY80: TOTAL: \$928,435
Prin Invest NASA Tech Officer CASE Category
Happner, W. GSFC/Thaddeus, P. 11-Astronomy
Broecker, W. S. GSFC/Hansen, J. E.

NSG 5194 Columbia University 3187
Simultaneous X-ray photometric and polarimetric observations
of the cygnus field
Period Obligations
08/01/77-01/31/79 FY80: TOTAL: \$7,000
Prin Invest NASA Tech Officer CASE Category
Novick, R. GSFC/Kupperian, J. E., Jr. 11-Astronomy

NSG 5222 Columbia University 3188
Remote spectral analysis of mineral induced plant stress using
airborne techniques
Period Obligations
01/16/78-07/15/79 FY80: TOTAL: \$55,332
Prin Invest NASA Tech Officer CASE Category
Kuo, J. T. GSFC/Labovitz, M. 32-Geological Sci
Collins, W. E. GSFC/Schnetzler, C. C.

NSG 5273 Columbia University 3189
Application of GEOS-3 altimeter data to solution of problems
in Earth dynamics
Period Obligations
07/01/78-06/30/79 FY80: TOTAL: \$50,000
Prin Invest NASA Tech Officer CASE Category
Talwani, M. GSFC/Smith, D. E. 32-Geological Sci
Watts, A. B.

NSG 7105 Columbia University 3190
Calculation of collision cross sections of astrophysical interest
Period Obligations
12/01/74-11/30/80 FY80: \$35,000 TOTAL: \$213,000
Prin Invest NASA Tech Officer CASE Category
Flynn, G. HD-SC/doggess, N. W. 11-Astronomy
Bernstein, R. B. HD-SC/Roman, N. G.

NSG 7194 Columbia University 3191
A critical study of constraints imposed by existing observational
data
Period Obligations
02/01/76-01/31/79 FY80: TOTAL: \$93,855
Prin Invest NASA Tech Officer CASE Category
Keilm, S. J. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. E.

NSG 7434 Columbia University 3192
Phase stability and elastic wave velocity determinations for
stoichiometric FeS
Period Obligations
02/01/78-01/31/80 FY80: TOTAL: \$63,123
Prin Invest NASA Tech Officer CASE Category
Takahashi, T. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. E.

NSG 7466 Columbia University 3193
Petrogenesis of chondrules and chondrites
Period Obligations
05/01/78-03/31/80 FY80: TOTAL: \$100,445
Prin Invest NASA Tech Officer CASE Category
Zindler, A. HD-SL/French, B. M. 32-Geological Sci

NAG 1-18 Cooper Union College 3194
A comprehensive model to determine the effects of temperature
and species fluctuations on reaction rates in turbulent reacting
flows
Period Obligations
02/01/79-01/31/81 FY80: \$19,889 TOTAL: \$19,889
Prin Invest NASA Tech Officer CASE Category
Chinitz, W. LARC/Evans, J. S. 21-Mathematics
LARC/Beach, H. L.

NAG 1-83 Cornell University 3195
Graphoepitaxy of gallium-arsenic (GaAs)
Period Obligations
07/01/80-06/30/81 FY80: \$47,466 TOTAL: \$47,466
Prin Invest NASA Tech Officer CASE Category
Ballantyne, J. M. LARC/Conway, E. J. 45-Elec Engr
Wagner, D. K. LARC/Walker, G. H.

NAG 2-13 Cornell University 3196
Analysis of transonic flow past helicopter rotors
Period Obligations
01/01/80-10/31/80 FY80: \$10,500 TOTAL: \$10,500
Prin Invest NASA Tech Officer CASE Category
Caughey, D. A. ARC/Tauber, M. E. 41-Aero Engr

NAG 3-19 Cornell University 3197
Analysis of rotational, transonic flows in turbomachinery
Period Obligations
01/01/80-12/31/80 FY80: \$53,080 TOTAL: \$53,080
Prin Invest NASA Tech Officer CASE Category
Caughey, D. A. LERC/Johnson, G. M. 41-Aero Engr

NAG 3-104 Cornell University 3198
Analysis of wind energy systems
Period Obligations
09/22/80-09/21/81 FY80: \$34,310 TOTAL: \$34,310
Prin Invest NASA Tech Officer CASE Category
Thomas, R. J. LERC/Gilbert, L. J. 45-Elec Engr

NASA'S UNIVERSITY PROGRAM
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NAG 5-39 **Cornell University** **3199**
Finite element research of the surface strain field adjacent to the San Andreas fault
Period *Obligations*
04/01/80-03/31/81 **FY80: \$28,000** **TOTAL: \$28,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Turcotte, D. L. GSFC/Holweck, E. C. 32-Geological Sci
Kulhawy, F. H. GSFC/Cohen, S. C.

NAG 5-40 **Cornell University** **3200**
Research of precise leveling space geodesy and geodynamics
Period *Obligations*
04/01/80-03/31/81 **FY80: \$40,000** **TOTAL: \$40,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Oliver, J. GSFC/Harper, E. L. 32-Geological Sci
Brown, L. D. GSFC/Allenby, R. J.

NAGW 3 **Cornell University** **3201**
The amyloplast as a gravity sensing device in plants
Period *Obligations*
10/01/79-09/30/80 **FY80: \$51,900** **TOTAL: \$51,900**
Prin Invest *NASA Tech Officer* *CASE Category*
Leopold, A. C. HD-SB/Halstead, T. W. 51-Biological Sci

NAGW 90 **Cornell University** **3202**
Theoretical studies of plasma convection and magnetic field reconnection in the Sun and in the Earth's magnetosphere
Period *Obligations*
06/01/80-05/31/81 **FY80: \$152,000** **TOTAL: \$152,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Sudan, R. N. HD-ST/Birmingham, T. J. 13-Physics
HD-ST/Newton, G. P.

NAS 5-23236 **Cornell University** **3203**
Feasibility study for infrared interferometer, spectrometer, and radiometer for Mariner/Jupiter 1977 launch
Period *Obligations*
05/01/73-10/31/81 **FY80: \$17,000** **TOTAL: \$78,300**
Prin Invest *NASA Tech Officer* *CASE Category*
Gierasch, P. J. GSFC/Conrath, B. J. 13-Physics
GSFC/Hanel, R. A.

NASW 3342 **Cornell University** **3204**
Set up a computer system for the Spacecraft Planetary Imaging Facility at Cornell
Period *Obligations*
10/01/79-10/30/80 **FY80: \$86,000** **TOTAL: \$86,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Veverka, J. HD-SL/Boyce, J. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NCA 2-175001 **Cornell University** **3205**
The motion of circumplanetary particles: The origin and evolution of planetary rings, and possible dust coatings of regular satellites
Period *Obligations*
02/01/80-01/31/81 **FY80: \$6,545** **TOTAL: \$6,545**
Prin Invest *NASA Tech Officer* *CASE Category*
Burns, J. A. ARC/Pollack, J. B. 31-Atmos Sci

NCA 2-175002 **Cornell University** **3206**
A study of the performance of stressed photoconductor detectors for far infrared astronomy
Period *Obligations*
07/01/80-12/31/80 **FY80: \$8,007** **TOTAL: \$8,007**
Prin Invest *NASA Tech Officer* *CASE Category*
Harwit, M. ARC/Erickson, E. F. 11-Astronomy
Russell, R. W.

NCC 2-79 **Cornell University** **3207**
Prototype GE: GA detectors for a cooled grating spectrometer
Period *Obligations*
05/01/80-12/31/80 **FY80: \$24,500** **TOTAL: \$24,500**
Prin Invest *NASA Tech Officer* *CASE Category*
Houck, J. R. ARC/Lum, H. 11-Astronomy
Briotta, D.

NCC 5-2 **Cornell University** **3208**
Finite element research of the surface field adjacent to the San Andreas fault
Period *Obligations*
04/01/79-03/31/80 **FY80:** **TOTAL: \$31,899**
Prin Invest *NASA Tech Officer* *CASE Category*
Turcotte, D. L. GSFC/Cohen, S. C. 11-Astronomy
Kulhawy, F. H.

NCC 5-4 **Cornell University** **3209**
Research of precise leveling, space geodesy and geodynamics
Period *Obligations*
04/01/79-03/31/80 **FY80:** **TOTAL: \$60,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Oliver, J. GSFC/Allenby, R. J. 32-Geological Sci
Brown, L. D.

NGL 33-010-082 **Cornell University** **3210**
The study of lunar and planetary surfaces and atmospheres
Period *Obligations*
09/23/68-10/31/80 **FY80: \$39,700** **TOTAL: \$770,918**
Prin Invest *NASA Tech Officer* *CASE Category*
Sagan, C. E. HD-SL/Murphy, R. E. 31-Atmos Sci

NGL 33-010-171 **Cornell University** **3211**
A program in remote sensing
Period *Obligations*
02/14/72-05/01/83 **FY80: \$100,000** **TOTAL: \$1,000,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Liang, T. HD-ET/Vitale, J. A. 39-Env Sci, NEC

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NGR 33-010-186 **Cornell University** **3212**
Studies of thermal structure and motion of planetary atmospheres
Period *Obligations*
04/18/73-06/14/81 **FY80: \$50,283** **TOTAL: \$317,792**
Prin Invest *NASA Tech Officer* *CASE Category*
Gierasch, P. J. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NGR 33-010-081 **Cornell University** **3213**
2 to 4 micron spectroscopy of Mars
Period *Obligations*
03/01/73-10/31/80 **FY80: \$98,180** **TOTAL: \$476,767**
Prin Invest *NASA Tech Officer* *CASE Category*
Houck, J. R. ARC/Haughney, L. C. 11-Astronomy
Forrest, W. J. ARC/Gillespie, C. M.
Pollack, J. B.

NGR 33-010-101 **Cornell University** **3214**
An integrated program in exobiology and problems related to origin of life
Period *Obligations*
10/09/69-10/01/80 **FY80: \$90,000** **TOTAL: \$869,945**
Prin Invest *NASA Tech Officer* *CASE Category*
Sagan, C. E. HD-SB/Devincenzi, D. L. 12-Chemistry
Khare, B. N.

NGR 33-010-108 **Cornell University** **3215**
Implications of convection within the Moon
Period *Obligations*
05/18/70-01/31/81 **FY80: \$30,346** **TOTAL: \$229,566**
Prin Invest *NASA Tech Officer* *CASE Category*
Turcotte, D. L. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. E.

NGR 33-010-146 **Cornell University** **3216**
Submillimeter astronomical spectrometry from aircraft
Period *Obligations*
02/16/72-10/31/80 **FY80: \$52,000** **TOTAL: \$294,714**
Prin Invest *NASA Tech Officer* *CASE Category*
Harwit, M. ARC/Mason, R. H. 11-Astronomy
ARC/Haughney, L. C.

NGR 33-010-161 **Cornell University** **3217**
Studies of the magnetospheres of Earth and Jupiter
Period *Obligations*
01/18/72-06/30/80 **FY80: \$72,000** **TOTAL: \$359,790**
Prin Invest *NASA Tech Officer* *CASE Category*
Farley, D. T. HD-ST/Hedin, A. E. 13-Physics
HD-ST/Schmerling, E. R.

NGR 33-010-182 **Cornell University** **3218**
16 to 40 micron spectroscopy of Jupiter
Period *Obligations*
12/20/72-10/31/80 **FY80:** **TOTAL: \$245,084**
Prin Invest *NASA Tech Officer* *CASE Category*
Houck, J. R. ARC/Cameron, R. M. 11-Astronomy
Forrest, W. J. ARC/Mason, R. H.
Pollack, J. B.

NGR 33-010-220 **Cornell University** **3219**
Interdisciplinary investigations of Mariner 9 data
Period *Obligations*
12/05/73-09/30/80 **FY80: \$40,000** **TOTAL: \$347,791**
Prin Invest *NASA Tech Officer* *CASE Category*
Sagan, C. E. HD-SL/Boyce, J. M. 32-Geological Sci

NSG 1642 **Cornell University** **3220**
Devices for integrated electro-optic circuits
Period *Obligations*
07/15/79-07/14/81 **FY80: \$49,965** **TOTAL: \$99,500**
Prin Invest *NASA Tech Officer* *CASE Category*
Frey, J. LARC/Hendricks, H. D. 45-Elec Engr

NSG 1651 **Cornell University** **3221**
Holographic fabrication of gratings in metal substrates
Period *Obligations*
08/15/79-10/31/80 **FY80: \$11,592** **TOTAL: \$67,567**
Prin Invest *NASA Tech Officer* *CASE Category*
Ballantyne, J. M. LARC/Conway, E. J. 45-Elec Engr
Wagner, D. K. LARC/Walker, G. H.

NSG 2347 **Cornell University** **3222**
Far infrared spectral line observations from the G. P. Kuiper Airborne Observatory
Period *Obligations*
10/01/78-10/31/80 **FY80: \$104,000** **TOTAL: \$194,500**
Prin Invest *NASA Tech Officer* *CASE Category*
Harwit, M. ARC/Haughney, L. C. 11-Astronomy
Russell, R. W. ARC/Gillespie, C. M.

NSG 2382 **Cornell University** **3223**
A study to assess the potential for using long chain polymers dissolved in water to study turbulence
Period *Obligations*
06/01/79-05/31/81 **FY80: \$40,000** **TOTAL: \$65,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Lumley, J. L. ARC/Chapman, G. T. 41-Aero Engr

NSG 2389 **Cornell University** **3224**
An evaluation of metal oxide semiconductor field effect transistor and metal semiconductor field effect transistor devices as preamplifiers at liquid helium temperatures
Period *Obligations*
06/01/79-05/31/81 **FY80: \$32,680** **TOTAL: \$62,431**
Prin Invest *NASA Tech Officer* *CASE Category*
Lee, C. A. ARC/McCreight, C. R. 45-Elec Engr
Houck, J. R. ARC/Goebel, J. H.

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NSG 2408 **Cornell University** **3225**
Aerobic biological waste treatment for closed ecological life support systems
Period *Obligations*
09/15/79-01/14/81 **FY80: \$80,000** **TOTAL: \$95,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Shuler, M. L. ARC/Wydeven, T. 39-Env Sci, NEC

NSG 2412 **Cornell University** **3226**
Molecular spectroscopy from the Kuiper Airborne Observatory
Period *Obligations*
10/01/79-10/31/80 **FY80: \$52,640** **TOTAL: \$52,640**
Prin Invest *NASA Tech Officer* *CASE Category*
Beckwith, S. ARC/Haughney, L. C. 11-Astronomy
Russell, R. W. ARC/Gillespie, C. M.

NSG 3019 **Cornell University** **3227**
Flow processes in combustors
Period *Obligations*
07/01/74-07/31/81 **FY80:** **TOTAL: \$456,102**
Prin Invest *NASA Tech Officer* *CASE Category*
Gouldin, F. C. LERC/Marek, C. J. 41-Aero Engr
Leibovich, S. LERC/Diehl, L. A.
McLean, W. J.

NSG 5060 **Cornell University** **3228**
Comparison between calculated gravity anomalies for dynamic processes in the mantle and observations
Period *Obligations*
04/01/75-09/30/79 **FY80:** **TOTAL: \$110,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Turcotte, D. L. GSFC/Cohen, S. C. 32-Geological Sci

NSG 6020 **Cornell University** **3229**
Rocket investigation of neutral atmosphere ionosphere coupling and planetary electrodynamics
Period *Obligations*
03/01/78-09/30/80 **FY80: \$50,545** **TOTAL: \$158,568**
Prin Invest *NASA Tech Officer* *CASE Category*
Kelley, M. C. WFC/Gray, J. W. 19-Phys Sci, NEC
Henize, K. G. WFC/Pless, R. H.

NSG 7126 **Cornell University** **3230**
High spatial resolution multicolor observation of Neptune during occultation by the Moon
Period *Obligations*
01/01/75-03/31/79 **FY80:** **TOTAL: \$108,391**
Prin Invest *NASA Tech Officer* *CASE Category*
Veverka, J. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Quaide, W. L.

NSG 7156 **Cornell University** **3231**
Physical studies of planetary surfaces
Period *Obligations*
07/01/75-09/30/81 **FY80: \$45,400** **TOTAL: \$186,631**
Prin Invest *NASA Tech Officer* *CASE Category*
Veverka, J. HD-SL/Boyce, J. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NSG 7235 **Cornell University** **3232**
Light-induced amino acid transport by envelope vesicles of halobacterium halobium cells
Period *Obligations*
03/01/76-01/31/80 **FY80:** **TOTAL: \$100,500**
Prin Invest *NASA Tech Officer* *CASE Category*
MacDonald, R. E. HD-SB/Young, R. S. 51-Biological Sci

NSG 7324 **Cornell University** **3233**
Bolometer system
Period *Obligations*
04/01/77-11/01/80 **FY80: \$35,000** **TOTAL: \$93,270**
Prin Invest *NASA Tech Officer* *CASE Category*
Houck, J. R. HD-SC/Bogges, N. W. 11-Astronomy

NSG 7445 **Cornell University** **3234**
Consequences of past lunar tides, heating surface processes and orbital evolution
Period *Obligations*
04/01/78-04/30/80 **FY80:** **TOTAL: \$48,863**
Prin Invest *NASA Tech Officer* *CASE Category*
Burns, J. A. HD-SL/Quaide, W. L. 31-Atmos Sci
HD-SL/French, B. M.

NSG 7487 **Cornell University** **3235**
Astrophysical materials science theory
Period *Obligations*
10/01/78-10/29/81 **FY80: \$65,000** **TOTAL: \$130,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Ashcroft, N. W. LERC/Brown, G. V. 13-Physics

NSG 7488 **Cornell University** **3236**
Research on ultrahigh pressure materials science
Period *Obligations*
10/01/78-10/29/80 **FY80: \$200,000** **TOTAL: \$400,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Ruoff, A. L. LERC/Goldstein, M. E. 47-Materials Engr

NSG 7498 **Cornell University** **3237**
Establish and operate a Spacecraft Planetary Imagery Facility (SPIF) at Cornell
Period *Obligations*
10/01/78-09/30/80 **FY80: \$68,030** **TOTAL: \$153,277**
Prin Invest *NASA Tech Officer* *CASE Category*
Veverka, J. HD-SL/Boyce, J. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NSG 7529 **Cornell University** **3238**
Phylogeny of photosynthetic bacteria
Period *Obligations*
02/01/79-03/31/81 **FY80: \$8,756** **TOTAL: \$18,119**
Prin Invest *NASA Tech Officer* *CASE Category*
Gibson, J. HD-SB/Devincenzi, D. L. 51-Biological Sci

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NSG 7546 **Cornell University** **3239**
Participation in the Mars data analysis program: Global and regional studies of wind-indicators on the surface of Mars
Period *Obligations*
04/01/79-09/30/80 **FY80: \$59,700** **TOTAL: \$89,700**
Prin Invest *NASA Tech Officer* *CASE Category*
Veverka, J. HD-SL/Boyce, J. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NSG 7547 **Cornell University** **3240**
Participation in the Mars data analysis comparative study of the surface of phobos and deimos
Period *Obligations*
03/01/79-09/30/80 **FY80: \$39,300** **TOTAL: \$64,300**
Prin Invest *NASA Tech Officer* *CASE Category*
Veverka, J. HD-SL/Boyce, J. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NSG 7593 **Cornell University** **3241**
Dynamical studies of phobos and deimos
Period *Obligations*
03/01/79-09/30/80 **FY80: \$20,452** **TOTAL: \$20,452**
Prin Invest *NASA Tech Officer* *CASE Category*
Burns, J. A. HD-SL/Quaide, W. L. 32-Geological Sci

NSG 7606 **Cornell University** **3242**
Effects of photometric geometry on spectral reflectance measurements
Period *Obligations*
05/01/79-03/31/81 **FY80: \$45,900** **TOTAL: \$88,110**
Prin Invest *NASA Tech Officer* *CASE Category*
Veverka, J. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NSG 7612 **Cornell University** **3243**
Participation in the Mars data analysis program. Analysis of cloud forms in Viking and Mariner 9 images
Period *Obligations*
04/01/79-10/30/81 **FY80: \$38,870** **TOTAL: \$58,870**
Prin Invest *NASA Tech Officer* *CASE Category*
Gierasch, P. J. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NSG 2259 **Cornell University - Medical Center** **3244**
Central neural and neurochemical mechanisms subserving postural cardiovascular changes
Period *Obligations*
10/01/77-10/31/80 **FY80:** **TOTAL: \$150,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Reis, D. J. ARC/Sandler, H. 59-Life Sci, NEC

NGR 33-209-002 **Holstra University** **3245**
Radar studies and application of measurements of ocean wave height and directional spectrum
Period *Obligations*
03/28/72-01/31/81 **FY80: \$31,851** **TOTAL: \$186,462**
Prin Invest *NASA Tech Officer* *CASE Category*
Weissman, W. E. LARC/Johnson, J. W. 45-Elec Engr
LARC/Jones, W. L.

NSG 5325 **Hunter College** **3246**
Monitoring tropical vegetation succession with LANDSAT data
Period *Obligations*
02/01/79-12/31/80 **FY80: \$10,000** **TOTAL: \$20,727**
Prin Invest *NASA Tech Officer* *CASE Category*
Coiner, J. C. GSFC/Unger, S. G. 32-Geological Sci

NAG 5-73 **New York University** **3247**
Multifrequency observations of selected extragalactic sources
Period *Obligations*
06/01/80-05/31/81 **FY80: \$12,000** **TOTAL: \$12,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Glassgold, A. E. GSFC/Boggess, A. 11-Astronomy
Bregman, J. N.
Huggins, P. I.

NAG 8-337 **New York University** **3248**
Gaseous coronae of galaxies and red quasi stellar objects
Period *Obligations*
03/01/80-02/28/81 **FY80: \$11,000** **TOTAL: \$11,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Glassgold, A. E. MSFC/Jones, J. B. 11-Astronomy

NAG 8-343 **New York University** **3249**
Supernova-like quasars
Period *Obligations*
03/01/80-02/28/81 **FY80: \$4,500** **TOTAL: \$4,500**
Prin Invest *NASA Tech Officer* *CASE Category*
Huggins, P. J. MSFC/Jones, J. B. 11-Astronomy

NAG 8-358 **New York University** **3250**
The galactic supernova remnant S147
Period *Obligations*
07/01/80-06/30/81 **FY80: \$5,300** **TOTAL: \$5,300**
Prin Invest *NASA Tech Officer* *CASE Category*
Glassgold, A. E. MSFC/Swearingen, J. C. 11-Astronomy

NAS 8-33099 **New York University** **3251**
Electrophoresis separation (77-E)
Period *Obligations*
08/21/78-05/05/79 **FY80:** **TOTAL: \$5,354**
Prin Invest *NASA Tech Officer* *CASE Category*
Johnson, A. J. MSFC/Reeves, F. A. 59-Life Sci, NEC
MSFC/Snyder, K. S.

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NCA 2-525001 New York University **3252**
Random choice methods and corresponding one-sided schemes
for hyperbolic conservation laws
Period *Obligations*
06/15/80-09/30/80 FY80: \$14,531 TOTAL: \$14,531
Prin Invest *NASA Tech Officer* *CASE Category*
Harten, A. ARC/Warming, R. F. 21-Mathematics

NGR 33-016-131 New York University **3253**
Hypersonic engine airplane integration
Period *Obligations*
02/27/68-09/30/80 FY80: \$14,922 TOTAL: \$1,290,400
Prin Invest *NASA Tech Officer* *CASE Category*
Agnone, A. M. LARC/Anderson, G. Y. 41-Aero Engr
LARC/Rogers, R. C.

NGR 33-016-196 New York University **3254**
Physical properties of molecular clouds
Period *Obligations*
09/01/73-05/31/81 FY80: \$61,177 TOTAL: \$229,823
Prin Invest *NASA Tech Officer* *CASE Category*
Glassgold, A. E. HD-SC/Weiler, E. J. 13-Physics
HD-SC/Roman, N. G.

NGR 33-016-201 New York University **3255**
Study of transonic flow over yawed wings
Period *Obligations*
05/29/73-09/30/81 FY80: \$98,535 TOTAL: \$401,662
Prin Invest *NASA Tech Officer* *CASE Category*
Garabedian, P. R. ARC/Hicks, R. M. 41-Aero Engr

NGT 33-016-800 New York University **3256**
Graduate student training program in computational fluid
dynamics
Period *Obligations*
07/01/80-12/31/80 FY80: \$75,000 TOTAL: \$75,000
Prin Invest *NASA Tech Officer* *CASE Category*
Garabedian, P. R. HD-RT/Graves, R. A. 41-Aero Engr

NSG 1444 New York University **3257**
An experimental and analytical investigation of the aerodynamics
of a hypersonic vehicle
Period *Obligations*
08/01/77-11/30/80 FY80: TOTAL: \$227,987
Prin Invest *NASA Tech Officer* *CASE Category*
Zakkay, V. LARC/Edwards, C. L. 41-Aero Engr
Wang, C. R. LARC/Johnson, P. J.

NSG 1576 New York University **3258**
Nonlinear wave propagation and super boom analysis
Period *Obligations*
11/15/78-08/31/80 FY80: TOTAL: \$35,750
Prin Invest *NASA Tech Officer* *CASE Category*
Ting, L. LARC/Darden, C. M. 13-Physics
LARC/Carlson, H. W.

NSG 1579 New York University **3259**
Computational fluid dynamics on the star
Period *Obligations*
12/01/78-11/30/80 FY80: \$150,000 TOTAL: \$300,000
Prin Invest *NASA Tech Officer* *CASE Category*
Garabedian, P. R. LARC/South, J. C., Jr. 21-Mathematics

NSG 1610 New York University **3260**
Definition and implementation of a compatible family of high
level languages for coordination and control of concurrent and
distributed processes in imbedded avionics and space ap-
plications
Period *Obligations*
04/15/79-08/31/80 FY80: TOTAL: \$48,250
Prin Invest *NASA Tech Officer* *CASE Category*
Schwartz, J. T. LARC/Knight, J. C. 21-Mathematics
LARC/Harris, J. L.

NSG 3059 New York University **3261**
Analysis of experiments on hydrodynamics instability in the
absence of gravity
Period *Obligations*
06/01/75-08/30/81 FY80: \$2,000 TOTAL: \$63,614
Prin Invest *NASA Tech Officer* *CASE Category*
Ting, L. LERC/Labus, T. L. 49-Engr, NEC

NSG 5034 New York University **3262**
Research program in climatology and meteorology
Period *Obligations*
01/01/75-08/31/81 FY80: \$140,000 TOTAL: \$563,113
Prin Invest *NASA Tech Officer* *CASE Category*
Schwartz, J. T. GSFC/Halem, M. 31-Atmos Sci

NSG 5130 New York University **3263**
Short term numerical weather prediction and very long term
climate modeling
Period *Obligations*
10/01/76-10/31/82 FY80: \$55,500 TOTAL: \$225,812
Prin Invest *NASA Tech Officer* *CASE Category*
Isaacson, E. GSFC/Halem, M. 31-Atmos Sci
Ghil, M.

NSG 5411 New York University **3264**
Multifrequency observations of selected galaxies and extragalactic
sources
Period *Obligations*
10/01/79-09/30/80 FY80: \$5,000 TOTAL: \$5,000
Prin Invest *NASA Tech Officer* *CASE Category*
Huggins, P. J. GSFC/Boggess, A. 11-Astronomy

NSG 7591 New York University **3265**
Modeling the Viking boundary layer and soil thermal measure-
ments on Mars
Period *Obligations*
03/01/79-02/28/80 FY80: TOTAL: \$15,000
Prin Invest *NASA Tech Officer* *CASE Category*
Hoffert, M. I. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NSG 7636 **New York University** **3266**
To conduct research on the effectiveness of government sponsored
civilian research and development

Period	Obligations	
07/01/79-05/30/81	FY80:	TOTAL: \$168,524
Prin Invest	NASA Tech Officer	CASE Category
Fusfeld, H. I.	HD-ET/Roberson, F.	99-Multi-Discip
Nelson, R. R.	HD-ET/Ault, L. A.	

NAGW 51 **Polytechnic Institute of New York** **3267**
Investigate traveling ionospheric disturbances in Earth's iono-
sphere by analysis of satellite to satellite differential Doppler
data available from the 1975 Apollo-Soyuz test project

Period	Obligations	
08/01/80-07/31/81	FY80: \$26,000	TOTAL: \$26,000
Prin Invest	NASA Tech Officer	CASE Category
Gross, S. H.	HD-ST/Hedin, A. E.	13-Physics
	HD-ST/Schmerling, E. R.	

NCC 2-87 **Polytechnic Institute of New York** **3268**
The nonlinear potential equation and its conversion to a
Williams-Hawkins integral equation

Period	Obligations	
07/01/80-01/31/81	FY80: \$24,505	TOTAL: \$24,505
Prin Invest	NASA Tech Officer	CASE Category
Ison, M. P.	ARC/Smith, F. H.	41-Aero Engr
	ARC/Yu, Y. H.	

NSR 33-006-070 **Polytechnic Institute of New York** **3269**
Synthesis of polypeptides, sugar phosphates and polynucleotides
from intermediates under simulated conditions

Period	Obligations	
04/26/73-06/14/80	FY80: \$5,791	TOTAL: \$325,694
Prin Invest	NASA Tech Officer	CASE Category
Eirich, F. R.	HD-SB/Devincenzi, D. L.	12-Chemistry

NSG 1248 **Polytechnic Institute of New York** **3270**
Calculation of supersonic flow past aircraft with shocks

Period	Obligations	
10/01/75-10/31/80	FY80: \$60,016	TOTAL: \$278,007
Prin Invest	NASA Tech Officer	CASE Category
Moretti, G.	LARC/Salas, M. D.	41-Aero Engr

NSG 2147 **Polytechnic Institute of New York** **3271**
Exploratory synthesis of new fire safe polymeric materials

Period	Obligations	
05/01/76-05/31/81	FY80: \$23,000	TOTAL: \$259,588
Prin Invest	NASA Tech Officer	CASE Category
Pearce, E. M.	ARC/Fohlen, G. M.	12-Chemistry
	ARC/Parker, J. A.	

NSG 5284 **Polytechnic Institute of New York** **3272**
A morphological study of waves in the thermosphere

Period	Obligations	
07/01/78-12/31/80	FY80:	TOTAL: \$47,652
Prin Invest	NASA Tech Officer	CASE Category
Gross, S. H.	GSFC/Spencer, N. W.	31-Atmos Sci
Reber, C. A.		

NSG 7321 **Queens College** **3273**
Phase stability and elastic wave velocity determinations for
stoichiometric FeS

Period	Obligations	
02/01/77-11/30/78	FY80:	TOTAL: \$118,823
Prin Invest	NASA Tech Officer	CASE Category
Takahashi, T.	HD-SL/Quaide, W. L.	32-Geological Sci

NAG 4-2 **Queensborough Community College** **3274**
The feasibility of performing in-flight measurements of air flow
transition and boundary layers using a hot wire anemometry
system

Period	Obligations	
02/05/80-02/04/81	FY80: \$29,714	TOTAL: \$29,714
Prin Invest	NASA Tech Officer	CASE Category
Kousourou, G.	DFRC/Bouge, R. K.	41-Aero Engr
	DFRC/Bennett, D. L.	

NCA 2-625902 **Queensborough Community College** **3275**
Analysis of interaction of age, sex, and bed rest deconditioning
on cardiovascular parameters and predictive indices

Period	Obligations	
01/01/79-12/31/80	FY80: \$18,426	TOTAL: \$36,852
Prin Invest	NASA Tech Officer	CASE Category
Yuster, R.	ARC/Goldwater, D.	56-Medical Sciences
	ARC/Sandler, H.	

NAG 1-61 **Rensselaer Polytechnic Institute** **3276**
Data acquisition and analysis of range-finding system for space
construction

Period	Obligations	
05/01/80-04/30/81	FY80: \$60,000	TOTAL: \$60,000
Prin Invest	NASA Tech Officer	CASE Category
Shen, C. N.	LARC/Pennington, J. E.	21-Mathematics

NAG 3-22 **Rensselaer Polytechnic Institute** **3277**
Creep-fatigue interactions in nickel base superalloys

Period	Obligations	
01/01/80-12/31/80	FY80: \$30,000	TOTAL: \$30,000
Prin Invest	NASA Tech Officer	CASE Category
Duquette, D. J.	LERC/Miner, R. V.	47-Materials Engr
Stoloff, N. S.		

NAG 3-37 **Rensselaer Polytechnic Institute** **3278**
Proposal structural dynamics studies for fan/turbine design

Period	Obligations	
03/03/80-03/02/81	FY80: \$50,000	TOTAL: \$50,000
Prin Invest	NASA Tech Officer	CASE Category
Loewy, R. G.	LERC/Kiraly, L. J.	46-Mech Engr
	LERC/Johns, R. H.	

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAS 8-26146 Rensselaer Polytechnic Institute 3279
Growth of single crystals by vapor transport in zero gravity environment
Period Obligations
06/01/70-10/06/78 FY80: TOTAL: \$261,998
Prin Invest NASA Tech Officer CASE Category
Wiedmann, H MSFC/Davidson, M. C.
MSFC/Thomas, P. E. 47-Materials Engr

NAS 8-32425 Rensselaer Polytechnic Institute 3280
Dendritic solidification at small supercooling
Period Obligations
03/01/77-03/31/81 FY80: \$75,390 TOTAL: \$195,290
Prin Invest NASA Tech Officer CASE Category
Glicksman, M. E. MSFC/Bannister, T. C.
MSFC/Lacy, L. L. 47-Materials Engr

NAS 8-32639 Rensselaer Polytechnic Institute 3281
Space processing crystal growth from the vapor phase
Period Obligations
09/20/77-12/31/78 FY80: TOTAL: \$27,546
Prin Invest NASA Tech Officer CASE Category
Wiedemeier, H MSFC/Davidson, M. C.
MSFC/Thomas, P. E. 19-Phys Sci, NEC

NAS 8-32690 Rensselaer Polytechnic Institute 3282
Solidification processes involving solutes
Period Obligations
07/24/78-10/31/80 FY80: \$21,000 TOTAL: \$82,000
Prin Invest NASA Tech Officer CASE Category
Glicksman, M. E. MSFC/Bannister, T. C.
MSFC/Lacy, L. L. 12-Chemistry

NAS 8-32936 Rensselaer Polytechnic Institute 3283
Vapor growth of alloy type semiconductor crystals experiment
Period Obligations
03/20/79-03/20/82 FY80: \$75,000 TOTAL: \$354,000
Prin Invest NASA Tech Officer CASE Category
Wiedemeier, H. MSFC/Schaefer, D. A. 47-Materials Engr
Davidson, M. C. MSFC/Zwierer, J. M.
Irene, F. A.

NAS 8-33074 Rensselaer Polytechnic Institute 3284
Study nucleation and growth of immiscible phases
Period Obligations
06/01/78-09/30/79 FY80: TOTAL: \$32,000
Prin Invest NASA Tech Officer CASE Category
Ross, S. MSFC/Lacy, L. L. 13-Physics
Ross, S. MSFC/Witherow, W. K.
Nishioka, G.

NAS 8-33562 Rensselaer Polytechnic Institute 3285
Data analysis and modeling of ultra violet spectrometer and polarimeter, experiment and other related experiments for solar maximum mission
Period Obligations
02/08/80-02/07/83 FY80: \$98,000 TOTAL: \$98,000
Prin Invest NASA Tech Officer CASE Category
Wu, S. T. MSFC/Yates, I. C. 31-Atmos Sci
MSFC/Zwierer, J. M.

NAS 9-16053 Rensselaer Polytechnic Institute 3286
Solar power satellite flexible system control assessment analysis
Period Obligations
01/15/80-02/01/81 FY80: \$45,000 TOTAL: \$45,000
Prin Invest NASA Tech Officer CASE Category
Balas, M. J. JSC/Reid, R. C. 42-Astro Engr

NASW 3279 Rensselaer Polytechnic Institute 3287
Data acquisition and path selection decision making for an autonomous roving vehicle
Period Obligations
03/01/79-08/31/80 FY80: \$50,766 TOTAL: \$91,366
Prin Invest NASA Tech Officer CASE Category
Terazis, S. HD-RT/Gevarter, W. B. 31-Atmos Sci
Federica, D. K. LARC/Wooley, C.
Gisser, D. G.

NGI 33-018-003 Rensselaer Polytechnic Institute 3288
Interdisciplinary materials research including fundamental physics and chemistry of materials, environmental effects, and related problems
Period Obligations
09/01/70-04/30/83 FY80: \$400,000 TOTAL: \$5,709,400
Prin Invest NASA Tech Officer CASE Category
Wiberly, S. E. HD-RT/Greenfield, M. A.
Ansell, G. S./Harris, 47-Materials Engr
L. A.
Lowery, R.

NGI 33-018-007 Rensselaer Polytechnic Institute 3289
Investigation of composition and chemical behavior of atmosphere of Venus
Period Obligations
06/19/62-08/31/80 FY80: TOTAL: \$1,487,400
Prin Invest NASA Tech Officer CASE Category
Harteck, P. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NGR 33-018-148 Rensselaer Polytechnic Institute 3290
Photochemical investigations of the atmosphere of other planets
Period Obligations
08/27/70-10/31/80 FY80: \$55,000 TOTAL: \$401,000
Prin Invest NASA Tech Officer CASE Category
Ferra, J. P. HD-SB/Devincenzi, D. L. 12-Chemistry

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NSG 1510 Rensselaer Polytechnic Institute 3291
Improved high modulus carbon fibers
Period *Obligations*
04/01/78-12/31/80 FY80: \$131,390 TOTAL: \$413,540
Prin Invest *NASA Tech Officer* *CASE Category*
Ansell, G. S. LARC/Dicus, D. L. 47-Materials Engr
Diefendorf, R. J.

NSG 1624 Rensselaer Polytechnic Institute 3292
Investigation of passive shock wave-boundary layer control for transonic airfoil drag reduction
Period *Obligations*
10/01/79-09/30/81 FY80: \$59,700 TOTAL: \$109,700
Prin Invest *NASA Tech Officer* *CASE Category*
Nagamatsu, H. T. LARC/Harris, C. D. 41-Aero Engr
Brower, W. B. LARC/Barnwell, R. W.

NSG 1628 Rensselaer Polytechnic Institute 3293
Free-electron laser from wave mechanical beats of two electron beams
Period *Obligations*
07/01/79-10/31/80 FY80 TOTAL: \$42,200
Prin Invest *NASA Tech Officer* *CASE Category*
Schwarz, H. J. LARC/Meador, W. E. 13-Physics
LARC/Hohl, F.

NSG 1636 Rensselaer Polytechnic Institute 3294
Preliminary study on the potential usefulness of array processor techniques for structural synthesis
Period *Obligations*
07/12/79-06/14/80 FY80: TOTAL: \$19,995
Prin Invest *NASA Tech Officer* *CASE Category*
Feeser, L. J. LARC/Rogers, J. L. 41-Aero Engr
LARC/Giles, G. J.

NSG 3170 Rensselaer Polytechnic Institute 3295
Determination of physical and chemical states of lubricants in concentrated contacts using infrared Fourier transform spectroscopy
Period *Obligations*
01/01/78-12/31/80 FY80: \$42,300 TOTAL: \$118,290
Prin Invest *NASA Tech Officer* *CASE Category*
Lauer, J. L. LERC/Jones, W. R. 13-Physics

NSG 3262 Rensselaer Polytechnic Institute 3296
Suggested programs for unsteady turbine heat transfer
Period *Obligations*
05/01/79-04/30/81 FY80: \$65,440 TOTAL: \$125,960
Prin Invest *NASA Tech Officer* *CASE Category*
Mayle, R. E. LERC/Simoneau, R. J. 41-Aero Engr
LERC/Graham, R. W.

NSG 7345 Rensselaer Polytechnic Institute 3297
Biological adaptation to low temperature: A study of the molecular mechanism governing the responses of the protein synthesizing apparatuses to low temperature
Period *Obligations*
04/01/77-09/30/79 FY80: TOTAL: \$69,100
Prin Invest *NASA Tech Officer* *CASE Category*
Pope, D. H. HD-SB/Young, R. S. 51-Biological Sci

NSG 7369 Rensselaer Polytechnic Institute 3298
Autonomous control of roving vehicles for unmanned exploration of the planets
Period *Obligations*
06/01/77-08/31/79 FY80: TOTAL: \$80,000
Prin Invest *NASA Tech Officer* *CASE Category*
Yerazunis, S. HD-SB/Gevarter, W. B. 49-Engr, NEC
JP: Paine, G.

NCA 2-630001 Rockefeller University 3299
Investigation of nucleic acid interaction with activated amino acids in amino acid polymerization
Period *Obligations*
06/01/80-05/31/81 FY80: \$25,251 TOTAL: \$25,251
Prin Invest *NASA Tech Officer* *CASE Category*
Loew, G. H. ARC/MacElroy, R. D. 51-Biological Sci

NCA 2-630901 Rockefeller University 3300
The interaction of metal ions and nucleotides: Possible mechanisms for the adsorption of nucleotides on homoionic bentonite
Period *Obligations*
09/01/79-12/31/80 FY80: \$33,794 TOTAL: \$33,794
Prin Invest *NASA Tech Officer* *CASE Category*
Loew, G. H. ARC/Lawless, J. G. 51-Biological Sci

NSG 2380 Rockefeller University 3301
Vestibulocollic reflexes of otolith organs
Period *Obligations*
04/01/79-12/31/80 FY80: \$35,018 TOTAL: \$70,372
Prin Invest *NASA Tech Officer* *CASE Category*
Wilson, V. J. ARC/Dauntun, M. G. 51-Biological Sci

NSG 5-24 State Univ of New York - Albany 3302
The structural and tectonic evolution of the North anatoleon fault
Period *Obligations*
03/12/80-02/28/81 FY80: \$70,000 TOTAL: \$70,000
Prin Invest *NASA Tech Officer* *CASE Category*
Dewey, J. F. GSC/Lowrey, J. G. 32-Geological Sci
Burke, K.

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAS 8-32893 State Univ of New York - Albany 3303
Night-time and daytime orbital survey of lightning and convective phenomena experiment support

Period	Obligations
05/03/78-06/03/81	FY80: \$10,000 TOTAL: \$30,000
Prin Invest	NASA Tech Officer CASE Category
Vonnegut, B.	MSFC/Vaughn, O. H., Jr. MSFC/Anderson, B. J. 39-Env Sci, NEC

NAS 8-32947 State Univ of New York - Albany 3304
Static tube zero gravity electrophoresis of human pancreatic islets of Langerhans cells

Period	Obligations
04/07/78-11/14/80	FY80: TOTAL: \$133,800
Prin Invest	NASA Tech Officer CASE Category
VanOss, C. J.	MSFC/Williams, J. R. 59-Life Sci, NEC MSFC/Snyder, R. S.

NAS 8-33386 State Univ of New York - Albany 3305
Remote observations of severe storm

Period	Obligations
04/30/79-09/30/81	FY80: \$145,162 TOTAL: \$223,781
Prin Invest	NASA Tech Officer CASE Category
Orville, R. E.	MSFC/Turner, R. E. 31-Atmos Sci MSFC/Thomas, P. E.

NAS 9-15802 State Univ of New York - Albany 3306
Research study of non-invasive monitoring of cardio-pulmonary function

Period	Obligations
05/01/79-04/30/81	FY80: \$9,975 TOTAL: \$58,149
Prin Invest	NASA Tech Officer CASE Category
Farhi, L.	JSC/Horrigan, D. J. 59-Life Sci, NEC
Olszowska, A. J.	

NAS 9-15975 State Univ of New York - Albany 3307
Neurospora experiment

Period	Obligations
11/09/79-05/31/82	FY80: \$50,700 TOTAL: \$50,700
Prin Invest	NASA Tech Officer CASE Category
Sulzman, F. M.	JSC/Nolte, R. W. 51-Biological Sci
Fuller, C. A.	
Moore-cde, M. C.	

NAS 9-16042 State Univ of New York - Albany 3308
Life science flight experiment: Inflight study of cardiovascular deconditioning definition phase

Period	Obligations
01/17/80-10/31/80	FY80: \$42,345 TOTAL: \$42,345
Prin Invest	NASA Tech Officer CASE Category
Farhi, L.	JSC/Peck, E. E. 59-Life Sci, NEC

NASW 3333 State Univ of New York - Albany 3309
Planetary subsurface water analyzer instrument development

Period	Obligations
10/01/79-11/30/80	FY80: \$127,515 TOTAL: \$127,515
Prin Invest	NASA Tech Officer CASE Category
Anderson, D. M.	HD-SL/Boyce, J. M. 32-Geological Sci HD-SL/Quaide, W. L.

NSG 2386 State Univ of New York - Albany 3310
Identification of tropospheric and stratospheric air by tracer

Period	Obligations
05/01/79-01/31/81	FY80: \$19,000 TOTAL: \$49,000
Prin Invest	NASA Tech Officer CASE Category
Lazrus, A. L.	ARC/Page, W. A. 31-Atmos Sci

NSG 3095 State Univ of New York - Albany 3311
Fundamentals of radiation tolerance in silicon solar cells

Period	Obligations
01/26/76-06/19/81	FY80: \$65,000 TOTAL: \$260,000
Prin Invest	NASA Tech Officer CASE Category
Corbett, J. W.	LERC/Weinberg, I. 39-Env Sci, NEC LERC/Brandhorst, H. W., Jr.

NSG 3138 State Univ of New York - Albany 3312
Analysis of global air sampling program data

Period	Obligations
01/10/77-09/09/80	FY80: TOTAL: \$225,922
Prin Invest	NASA Tech Officer CASE Category
Falconer, P.	LERC/Holdeman, J. D. 31-Atmos Sci
Pratt, R.	

NSG 5274 State Univ of New York - Albany 3313
Global tectonic studies

Period	Obligations
05/15/78-11/14/79	FY80: TOTAL: \$34,964
Prin Invest	NASA Tech Officer CASE Category
Burke, K.	GSFC/Frey, H. V. 32-Geological Sci
Delong, S. E.	GSFC/Mead, G. D.
Dewey, J. F.	

NSG 7093 State Univ of New York - Albany 3314
Photoelectric studies of the night glow

Period	Obligations
12/23/74-09/30/80	FY80: \$40,000 TOTAL: \$260,803
Prin Invest	NASA Tech Officer CASE Category
Weinberg, J. L.	HD-SL/Murphy, R. E. 31-Atmos Sci HD-SL/Brunk, W. E.

NSG 7241 State Univ of New York - Albany 3315
Studies of background starlight

Period	Obligations
07/01/76-05/31/81	FY80: \$6,851 TOTAL: \$76,987
Prin Invest	NASA Tech Officer CASE Category
Weinberg, J. L.	HD-SC/Weiler, E. J. 11-Astronomy
Giovane, F.	HD-SC/Bogges, N. W.

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NSG 7501 State Univ of New York - Albany 3316
Radiation induced rotation of small celestial bodies
Period *Obligations*
11/15/78-08/31/81 FY80: TOTAL: \$39,612
Prin Invest NASA Tech Officer CASE Category
Ratcliff, K. F. HD-RT/Whiting, E. E. 42-Astro Engr
GSFC/Paddock, S. J.

NSG 8040 State Univ of New York - Albany 3317
Research study of data analysis, Skylab zodiacal light experiment
Period *Obligations*
06/28/76-04/30/80 FY80: TOTAL: \$141,059
Prin Invest NASA Tech Officer CASE Category
Weinberg, J. L. MSFC/Gary, G. A. 11-Astronomy
MSFC/Miller, E. R.

NAS 2-10621 State Univ of New York - Binghamton 3318
Synchronization of primate circadian rhythms in space
Period *Obligations*
04/01/80-07/31/82 FY80: \$35,000 TOTAL: \$35,000
Prin Invest NASA Tech Officer CASE Category
Sulzman, F. M. ARC/Souza, K. A. 59-Life Sci, NEC

NGT 33-188-800 State Univ of New York - Binghamton 3319
Cardiovascular circadian rhythms
Period *Obligations*
09/01/80-08/31/81 FY80: \$12,000 TOTAL: \$12,000
Prin Invest NASA Tech Officer CASE Category
Sulzman, F. M. ARC/Sandler, H. 51-Biological Sci
Marnish, D. E. ARC/Feller, D.

NGR 33-015-108 State Univ of New York - Buffalo 3320
Planetary curriculum and related geologic research
Period *Obligations*
06/02/70-03/31/81 FY80: \$66,205 TOTAL: \$431,591
Prin Invest NASA Tech Officer CASE Category
King, J. S. HD-SL/Boyce, J. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NAG 5-7 State Univ of New York - Stony Brook 3321
Theoretical investigation of the mechanics of strike slip faulting in an inelastic Earth
Period *Obligations*
02/01/80-01/31/81 FY80: \$37,100 TOTAL: \$37,100
Prin Invest NASA Tech Officer CASE Category
Melosh, H. J. GSFC/Cohen, S. C. 32-Geological Sci

NAG 8-332 State Univ of New York - Stony Brook 3322
X-ray imaging observations of H-II region molecular cloud complexes using High Energy Astronomical Observatory-B
Period *Obligations*
01/15/80-02/14/81 FY80: \$7,440 TOTAL: \$7,440
Prin Invest NASA Tech Officer CASE Category
Simon, M. MSFC/Jones, J. B. 11-Astronomy

NAGW 25 State Univ of New York - Stony Brook 3323
Rare gases in meteorites
Period *Obligations*
02/01/80-04/01/81 FY80: \$72,321 TOTAL: \$72,321
Prin Invest NASA Tech Officer CASE Category
Schaeffer, O. A. HD-SL/French, B. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NAGW 50 State Univ of New York - Stony Brook 3324
Crater modification by gravity
Period *Obligations*
03/01/80-02/28/81 FY80: \$11,400 TOTAL: \$11,400
Prin Invest NASA Tech Officer CASE Category
Melosh, H. J. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NAS 1-16444 State Univ of New York - Stony Brook 3325
Science support for the Earth Radiation Budget Experiment (ERBE)
Period *Obligations*
09/24/80-09/23/85 FY80: \$31,000 TOTAL: \$31,000
Prin Invest NASA Tech Officer CASE Category
Cess, R. D. LARC/Hall, J. B. 31-Atmos Sci
LARC/Barkstrom, B. R.

NAS 2-10520 State Univ of New York - Stony Brook 3326
Investigation on the effects of hypogravity on some critical cellular events in plant development
Period *Obligations*
01/17/80-12/31/80 FY80: \$9,748 TOTAL: \$9,748
Prin Invest NASA Tech Officer CASE Category
Krikorian, A. D. ARC/Rasmussen, D. N. 51-Biological Sci
ARC/Mancini, R.

NAS 8-32904 State Univ of New York - Stony Brook 3327
Scientific investigations in support of the space telescope project
Period *Obligations*
02/01/78-01/31/84 FY80: TOTAL: \$139,500
Prin Invest NASA Tech Officer CASE Category
Caldwell, J. J. MSFC/ODEll, C. R. 11-Astronomy

NCA 2-760001 State Univ of New York - Stony Brook 3328
An investigation of laboratory produced solids and liquids as candidates for the scattering aerosols in outer planet atmospheres
Period *Obligations*
02/01/80-01/31/81 FY80: \$22,602 TOTAL: \$22,602
Prin Invest NASA Tech Officer CASE Category
Owens, T. ARC/Chang, S. 31-Atmos Sci
Scattergood, T.

NCC 3-2 State Univ of New York - Stony Brook 3329
Analytic modeling of soot formation under fuel rich conditions
Period *Obligations*
07/01/79-06/29/81 FY80: \$34,586 TOTAL: \$69,576
Prin Invest NASA Tech Officer CASE Category
Yang, C. H. LERC/Brabbs, T. A. 12-Chemistry
Beilad, A. L.

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NCC 5-7 State Univ of New York - Stony Brook 3330
Atmospheric pollution: Development and application
Period Obligations
04/09/79-12/31/80 FY80: \$57,000 TOTAL: \$100,000
Prin Invest NASA Tech Officer CASE Category
Hogan, J. S. GSFC/Stewart, R. W. 31-Atmos Sci
Hameed, S.

NCC 5-23 State Univ of New York - Stony Brook 3331
Planetary atmospheres research
Period Obligations
01/15/80-03/31/81 FY80: \$165,334 TOTAL: \$165,334
Prin Invest NASA Tech Officer CASE Category
Owen, T. GSFC/Hansen, J. E. 31-Atmos Sci

NGL 33-015-130 State Univ of New York - Stony Brook 3332
Lunar sample analysis
Period Obligations
02/11/71-01/31/81 FY80: \$75,218 TOTAL: \$1,030,058
Prin Invest NASA Tech Officer CASE Category
Bence, A. E. JSC/Harris, J. W. 13-Physics

NGL 33-015-174 State Univ of New York - Stony Brook 3333
Lunar sample analysis
Period Obligations
02/01/73-01/31/80 FY80: TOTAL: \$570,396
Prin Invest NASA Tech Officer CASE Category
Schaeffer, O. A. JSC/Harris, J. W. 12-Chemistry

NGR 33-015-139 State Univ of New York - Stony Brook 3334
Quantitative spectroscopic measurements on the principal constituents in planetary atmospheres
Period Obligations
04/12/71-05/31/81 FY80: \$36,927 TOTAL: \$316,451
Prin Invest NASA Tech Officer CASE Category
Barghoorn, E. S. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NGR 33-015-141 State Univ of New York - Stony Brook 3335
Spectroscopic observations of the planets
Period Obligations
01/26/71-12/31/80 FY80: \$34,152 TOTAL: \$266,339
Prin Invest NASA Tech Officer CASE Category
Owen, T. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Murphy, R. E.

NGR 33-015-165 State Univ of New York - Stony Brook 3336
Planetary atmospheres research
Period Obligations
11/01/72-01/31/80 FY80: TOTAL: \$507,420
Prin Invest NASA Tech Officer CASE Category
Owen, T. GSFC/Hansen, J. E. 31-Atmos Sci

NGR 33-015-180 State Univ of New York - Stony Brook 3337
Cosmic rays in interplanetary space
Period Obligations
01/07/74-01/31/81 FY80: \$24,800 TOTAL: \$124,054
Prin Invest NASA Tech Officer CASE Category
Forman, M. A. HD-SC/Fishman, G. J. 11-Astronomy
Pickman, S. L. HD-SC/Kaluzewski, L. J.

NSG 3051 State Univ of New York - Stony Brook 3338
Combustion of porous solids at reduced gravitational conditions
Period Obligations
06/01/75-06/30/79 FY80: TOTAL: \$76,563
Prin Invest NASA Tech Officer CASE Category
Berlad, A. L. LERC/Cochran, T. H. 43-Chem Engr

NSG 3298 State Univ of New York - Stony Brook 3339
Combustion theory for clouds of porous solids at reduced gravitational conditions
Period Obligations
10/01/79-01/30/80 FY80: TOTAL: \$40,000
Prin Invest NASA Tech Officer CASE Category
Berlad, A. L. LERC/Cochran, T. H. 13-Physics

NSG 5125 State Univ of New York - Stony Brook 3340
Research of thin-film Josephson-junction detector for millimeter and submillimeter wavelength applications
Period Obligations
11/01/76-06/30/79 FY80: TOTAL: \$42,101
Prin Invest NASA Tech Officer CASE Category
Kao, Y. H. GSFC/Kerr, A. R. 11-Astronomy
GSFC/Thaddeus, P.

NSG 5250 State Univ of New York - Stony Brook 3341
Ultraviolet observations of planets, satellites and comets with International Ultraviolet Explorer
Period Obligations
03/01/78-01/31/81 FY80: \$18,000 TOTAL: \$41,993
Prin Invest NASA Tech Officer CASE Category
Caldwell, J. J. GSFC/Bogges, A. 11-Astronomy
Owen, T. GSFC
Ponnamperuma, C.

NSG 7270 State Univ of New York - Stony Brook 3342
Cells, embryos and development in space
Period Obligations
09/01/76-10/31/80 FY80: \$70,770 TOTAL: \$262,570
Prin Invest NASA Tech Officer CASE Category
Krikorian, A. D. HD-SB/Halstead, T. W. 51-Biological Sci
Steward, F. C.

NSG 7286 State Univ of New York - Stony Brook 3343
Infrared spectroscopy of Jupiter and Saturn
Period Obligations
09/01/76-05/31/81 FY80: \$26,318 TOTAL: \$98,048
Prin Invest NASA Tech Officer CASE Category
Knacke, R. F. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Murphy, R. E.

NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)

NSG 7320 State Univ of New York - Stony Brook 3344
 Theoretical planetary physics
Period Obligations
 04/01/77-08/31/81 FY80 \$31,500 TOTAL \$109,910
Prin Invest NASA Tech Officer CASE Category
 Caldwell, J. J HD-SL/Brunk, W. F. 11-Astronomy
 HD-SL/Murphy, R. F.

NSG 7553 State Univ of New York - Stony Brook 3345
 Outer solar system nomenclature
Period Obligations
 04/01/79-03/31/81 FY80: \$9,923 TOTAL \$20,744
Prin Invest NASA Tech Officer CASE Category
 Owen, T. HD-SL/Dwornik, S. F. 32-Geological Sci
 HD-SL/Boyce, J. M.

NSG 9013 State Univ of New York - Stony Brook 3346
 Dating of lunar cratering events and rates of lunar surface processes
Period Obligations
 07/15/74-01/31/80 FY80 TOTAL \$308,669
Prin Invest NASA Tech Officer CASE Category
 Hartung, J. B JSC/Harris, J. W. 32-Geological Sci

NSG 9044 State Univ of New York - Stony Brook 3347
 Petrologic and stratigraphic studies of lunar drill cores and drive tubes
Period Obligations
 09/01/76-01/31/81 FY80 \$74,374 TOTAL \$407,115
Prin Invest NASA Tech Officer CASE Category
 Papike, J. J JSC/Harris, J. W. 13-Physics

NCA 2-765001 State Univ of New York - Upstate Med Ctr 3348
 Isolation and characterization of post-hypoxic hemolytic factors in blood
Period Obligations
 06/01/80-05/31/82 FY80 \$17,000 TOTAL \$17,000
Prin Invest NASA Tech Officer CASE Category
 Landaw, S. A ARC/Leon, H. A. 56-Medical Sciences

NCA 2-750001 State Univ of New York College, Buffalo 3349
 Simulation of water influence on molecular structure using an improved molecular dynamics approach
Period Obligations
 03/01/80-02/28/81 FY80 \$7,000 TOTAL \$7,000
Prin Invest NASA Tech Officer CASE Category
 Egan, J. T ARC/MacElroy, R. D. 51-Biological Sci

NAG 5-113 State Univ of New York Col - Genesee 3350
 Simultaneous in-eclipse ultra-violet observations of early-type eclipsing
Period Obligations
 10/01/80-09/30/81 FY80 \$1,120 TOTAL \$1,120
Prin Invest NASA Tech Officer CASE Category
 Meisel, D. D GSFC/Corrigan, J. P. 11-Astronomy

NAS 5-25967 State University of New York at Oneonta 3351
 Demonstration project to evaluate the utility of operational applications of LANDSAT to county and local government agencies
Period Obligations
 02/05/80-11/05/80 FY80: \$13,057 TOTAL: \$13,057
Prin Invest NASA Tech Officer CASE Category
 Baumann, P. R. GSFC/Austin, T. W. 39-Env Sci, NEC

NSG 5077 State Univ of New York College - Purchase 3352
 Spectral and Monte Carlo predictability studies
Period Obligations
 09/01/75-08/31/81 FY80: \$32,065 TOTAL \$103,285
Prin Invest NASA Tech Officer CASE Category
 Tenenbaum, J. GSFC/Halem, M. 31-Atmos Sci

NSG 1602 Syracuse University 3353
 Advanced programmable image sensor/processor
Period Obligations
 03/15/79-04/14/81 FY80 \$55,800 TOTAL \$107,081
Prin Invest NASA Tech Officer CASE Category
 Kowel, S. T. LARC/Benz, H. F. 45-Elec Engr
 Kornreich, P. F. LARC/Breckenridge, R. A.

NSG 1611 Syracuse University 3354
 Surface Acoustic Waves (SAW)/silicon monolithic programmable sensor, processor
Period Obligations
 05/01/79-04/30/81 FY80 \$74,233 TOTAL \$149,457
Prin Invest NASA Tech Officer CASE Category
 Kowel, S. T. LARC/Segura, R. 45-Elec Engr
 Kornreich, P. G.

NSG 1654 Syracuse University 3355
 Magnetization changes in small volume elements by stress control
Period Obligations
 09/01/79-08/31/80 FY80 TOTAL \$32,495
Prin Invest NASA Tech Officer CASE Category
 Schroder, K. LARC/Hayes, P. J. 47-Materials Engr

NAG 5-46 University of Rochester 3356
 Ultraviolet observations of the continua of nebulae and their exciting stars
Period Obligations
 05/01/80-04/30/81 FY80: \$7,435 TOTAL \$7,435
Prin Invest NASA Tech Officer CASE Category
 Helfer, H. L. GSFC/Bogges, A. 11-Astronomy
 Pipher, J. L.
 Herter, T. L.

NAS 9-16187 University of Rochester 3357
 Biochemical assays of cultured kidney cells
Period Obligations
 08/01/80-06/01/81 FY80: \$34,992 TOTAL \$34,992
Prin Invest NASA Tech Officer CASE Category
 Barlow, G. H. JSC/Moison, D. R. 51-Biological Sci
 JSC/Mieszkue, B.

NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)

NSG 2198 **University of Rochester** **3358**
Energy transfer between molecular collision systems and laser radiation fields
Period *Obligations*
12/31/76-12/31/80 FY80: \$38,000 TOTAL: \$183,408
Prin Invest *NASA Tech Officer* *CASE Category*
George, T. F. ARC/Stallcop, J. R. 13-Physics
Devines, P. L.

NSG 2343 **University of Rochester** **3359**
Determination of a galactic gradient. Measurements of the fine structure lines of AR-II, and S-III in galactic H-II regions
Period *Obligations*
10/01/78-10/31/80 FY80: \$27,928 TOTAL: \$55,346
Prin Invest *NASA Tech Officer* *CASE Category*
Pipher, J. L. ARC/Haughney, L. C. 11-Astronomy
Helfer, H. L. ARC/Gillespie, C. M.

NSG 5354 **University of Rochester** **3360**
Search for coronal features or circumstellar clouds around Sirius
Period *Obligations*
06/01/79-11/30/80 FY80: TOTAL: \$7,008
Prin Invest *NASA Tech Officer* *CASE Category*
Vanhorn, H. M. GSFC/Kuppenan, J. E., Jr 11-Astronomy

NSG 7562 **University of Rochester** **3361**
Basic research in sunspot dynamics
Period *Obligations*
10/01/78-09/30/80 FY80: \$19,000 TOTAL: \$38,000
Prin Invest *NASA Tech Officer* *CASE Category*
Thomas, J. H. HD-ST/Bohlin, J. D. 13-Physics

NSG 7454 **York College** **3362**
Irradiation effects on surface of Moon, Mercury, asteroids and solar system bodies
Period *Obligations*
06/01/78-05/31/81 FY80: \$41,822 TOTAL: \$106,251
Prin Invest *NASA Tech Officer* *CASE Category*
Spergel, M. S. HD-SL/Quaide, W. L. 13-Physics
HD-LU/Pohly, J. G.

NORTH CAROLINA

NAG 1-70 **Duke University** **3363**
Evaluation of Computer-Aided Reliability Estimation (CARE) III
Period *Obligations*
06/01/80-12/31/80 FY80: \$25,922 TOTAL: \$25,922
Prin Invest *NASA Tech Officer* *CASE Category*
Trivedi, K. S. LARC/Bavuso, S. J. 22-Computer Science
LARC/Lupton, A. O.

NAS 9-16020 **Duke University** **3364**
Optimal multicrop sampling and aggregation procedures development
Period *Obligations*
01/01/80-12/31/80 FY80: \$38,800 TOTAL: \$38,800
Prin Invest *NASA Tech Officer* *CASE Category*
Hartley, H. O. JSC/Hallum, C. R. 21-Mathematics

NSG 1647 **Duke University** **3365**
Improvement of nonlinear transient analysis efficiency
Period *Obligations*
09/01/79-02/28/81 FY80: TOTAL: \$42,189
Prin Invest *NASA Tech Officer* *CASE Category*
Melosh, R. J. LARC/Hayduk, R. J. 49-Engr, NEC
LARC/Thomson, R. G.

NSG 3157 **Duke University** **3366**
Design feasibility of high-power lightweight dc-to-dc converters for space power applications
Period *Obligations*
07/01/77-05/30/81 FY80: \$81,660 TOTAL: \$304,660
Prin Invest *NASA Tech Officer* *CASE Category*
Wilson, T. G. LERC/Gruber, R. P. 45-Elec Engr
Owen, H. A.

NSG 3160 **Duke University** **3367**
Acceleration of convergence
Period *Obligations*
06/01/77-05/30/81 FY80: \$14,966 TOTAL: \$49,951
Prin Invest *NASA Tech Officer* *CASE Category*
Smith, D. A. LERC/Ford, W. F. 21-Mathematics

NSG 7540 **Duke University** **3368**
Millimeter and submillimeter spectroscopy of molecules of atmospheric importance
Period *Obligations*
03/01/79-02/29/81 FY80: TOTAL: \$43,659
Prin Invest *NASA Tech Officer* *CASE Category*
Delucia, F. C. HD-EB/Toth, R. A. 31-Atmos Sci
HD-EB/Tilford, S. G.

NAG 1-82 **North Carolina A&T State University** **3369**
System compaction and integration-lasers
Period *Obligations*
07/14/80-07/13/81 FY80: \$50,000 TOTAL: \$50,000
Prin Invest *NASA Tech Officer* *CASE Category*
Yu, C. LARC/Hoell, J. M. 19-Phys Sci, NEC
LARC/Brockman, P.

NCC 1-37 **North Carolina A&T State University** **3370**
Dynamic analysis of the Solar Electric Propulsion (SEP) solar array and space shuttle
Period *Obligations*
09/01/80-05/31/81 FY80: \$22,445 TOTAL: \$22,445
Prin Invest *NASA Tech Officer* *CASE Category*
Abu-saba, E. G. LARC/Montgomery, R. C. 44-Civil Engr

**NASA'S UNIVERSITY PROGRAM
NORTH CAROLINA (Continued)**

NGT 34-012-800 North Carolina A&T State University 3371
Summer faculty fellowship program in engineering systems design

Period	Obligations
01/01/80-03/31/81	FY80: \$205,817 TOTAL: \$205,817
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Abu-saba, E. G.	HD-LU/Carter, C. H. 49-Engr, NEC

NSG 1390 North Carolina A&T State University 3372
Material growth and characterization of III-V compounds for solid state devices

Period	Obligations
02/01/77-03/31/81	FY80: \$150,000 TOTAL: \$600,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Stefanakos, E.	LARC/Hendricks, H. D. 45-Elec Engr
Collis, W. J.	

NSG 1516 North Carolina A&T State University 3373
Patterns of residual stresses within complex welded steel structures

Period	Obligations
04/15/78-05/14/81	FY80: \$22,230 TOTAL: \$67,090
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Botros, B. M.	LARC/Buckley, J. D. 47-Materials Engr

NSG 1631 North Carolina A&T State University 3374
Design and testing of small composite specimens

Period	Obligations
08/17/79-12/31/80	FY80: TOTAL: \$35,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Sharma, A. V.	LARC/Rhodes, M. D. 44-Civil Engr
	LARC/Mikulas, M. M.

NSG 5406 North Carolina A&T State University 3375
Two dimensional recursive digital filters for new real time image processing

Period	Obligations
09/13/79-12/31/80	FY80: TOTAL: \$55,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Alexander, W. E.	GSFC/Ramapriyan, H. K.
Olson, D. E.	21-Mathematics

NSG 8045 North Carolina A&T State University 3376
Research study of composites as substrate materials in large space telescopes

Period	Obligations
10/15/76-08/15/79	FY80: TOTAL: \$48,155
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Sharma, A. V.	MSFC/Stuckey, J. M. 46-Mech Engr
	MSFC/Kent, M. I.

NSG 5120 North Carolina Central University 3377

Optically pumped submillimeter waves and applications

Period	Obligations
06/07/76-08/31/81	FY80: \$45,022 TOTAL: \$196,821
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Jones, C. R.	GSFC/McAvoy, N. 13-Physics
Dutta, J. M.	GSFC/Lawandy, N.

NAG 1-20 North Carolina State Univ. - Raleigh 3378

Studies of image analysis

Period	Obligations
02/01/80-12/31/81	FY80: \$89,000 TOTAL: \$89,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Snyder, W. E.	LARC/Beng, H. F. 45-Elec Engr
Rajala, S. A.	LARC/Husson, C.

NAG 1-29 North Carolina State Univ. - Raleigh 3379

Trailing-edge flow and their influence on airfoil noise

Period	Obligations
01/15/80-01/14/81	FY80: \$20,000 TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Hodgson, T. H.	LARC/Yu, J. C. 13-Physics

NAG 1-103 North Carolina State Univ. - Raleigh 3380

Shape preserving approximation with application to computer aided geometric design

Period	Obligations
10/01/80-09/30/81	FY80: \$27,340 TOTAL: \$27,340
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
McAllister, D. F.	LARC/Park, S. K. 22-Computer Science

NAG 3-89 North Carolina State Univ. - Raleigh 3381

Boundary layer studies of model and full scale VTOL inlets in the diffusion limited flow regions

Period	Obligations
09/01/80-08/31/81	FY80: \$24,046 TOTAL: \$24,046
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Boles, M. A.	LERC/Stockman, N. O. 41-Aero Engr
	LERC/Hwang, D. P.

NAS 5-26157 North Carolina State Univ. - Raleigh 3382

Magnetic fields monitor satellite science investigation data and aeromagnetic data in the Eastern Piedmont of the United States

Period	Obligations
05/01/80-03/01/82	FY80: \$20,000 TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Won, I. J.	GSFC/Oseroff, H. 32-Geological Sci
Leith, C. J.	

NAS 6-3018 North Carolina State Univ. - Raleigh 3383

Perform statistical modelling of surface water movements using radar altimeter data

Period	Obligations
07/01/79-09/30/81	FY80: \$14,990 TOTAL: \$39,972
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Tung, C.	WFC/Huang, N. E. 33-Oceanography
	WFC/Long, S. R.

**NASA'S UNIVERSITY PROGRAM
NORTH CAROLINA (Continued)**

NCC 1-13 North Carolina State Univ. - Raleigh 3384
Investigation of aerodynamic characteristics of wings at subsonic speeds

Period	Obligations	
05/16/79-08/15/80	FY80: TOTAL: \$28,636	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Dejarnette, F. R.	LARC/Lamar, J. E.	41-Aero Engr
Frink, N. T.	LARC/Campbell, J. F.	

NCC 1-22 North Carolina State Univ. - Raleigh 3385
Computational fluid mechanics

Period	Obligations	
06/15/79-09/14/82	FY80: \$99,944 TOTAL: \$191,929	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Hassan, H. A.	LARC/South, J. C.	41-Aero Engr
Dejarnette, F. R.	LARC/Erickson, W. D.	

NCC 1-35 North Carolina State Univ. - Raleigh 3386
Development of an aerodynamic heating computer program for computer-aided design systems

Period	Obligations	
02/15/80-02/14/81	FY80: \$30,882 TOTAL: \$30,882	
<i>Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Dejarnette, F. R.	LARC/Wurster, K. E.	41-Aero Engr
	LARC/White, A. W.	

NCC 1-46 North Carolina State Univ. - Raleigh 3387
Investigation of the aerodynamic characteristics leading edge vortex flaps

Period	Obligations	
09/18/80-01/02/82	FY80: \$33,275 TOTAL: \$33,275	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Dejarnette, F. R.	LARC/Campbell, J. F.	41-Aero Engr
Tingas, S. A.		

NSG 1058 North Carolina State Univ. - Raleigh 3388
Analyses of nuclear induced plasmas by means of kinetic theory

Period	Obligations	
07/01/74-06/30/81	FY80: TOTAL: \$181,100	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Hassan, H. A.	LARC/Meador, W. E.	13-Physics
	LARC/Iohl, F.	

NSG 1353 North Carolina State Univ. - Raleigh 3389
Pattern classifiers using charge transfer devices applications

Period	Obligations	
11/22/76-01/31/80	FY80: \$6,355 TOTAL: \$111,785	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Snyder, W. E.	LARC/Benz, H. F.	45-Elec Engr
	LARC/Husson, C.	

NSG 1355 North Carolina State Univ. - Raleigh 3390
A study of real-time computer graphic display technology for aeronautical applications

Period	Obligations	
01/01/77-03/31/81	FY80: \$25,016 TOTAL: \$84,798	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Rajala, S. A.	LARC/Batson, V. M.	45-Elec Engr
	LARC/Hatfield, J. J.	

NSG 1377 North Carolina State Univ. - Raleigh 3391
Investigation of flow noise from streamlined and blunt bodies trailing edge effects

Period	Obligations	
01/01/77-04/30/80	FY80: TOTAL: \$117,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Hodgson, T. H.	LARC/Brooks, T. F.	41-Aero Engr
	LARC/Preisser, J. S.	

NSG 1463 North Carolina State Univ. - Raleigh 3392
Nuclear magnetic resonance and infra-red study of moisture in epoxy resins and resin-graphite fiber composites

Period	Obligations	
11/01/77-03/31/80	FY80: TOTAL: \$36,426	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Memory, J. D.	LARC/Long, E. R., Jr.	47-Materials Engr
Fornes, R. F.		

NSG 1549 North Carolina State Univ. - Raleigh 3393
Constrained interpolation and approximation with application to computer aided geometric design

Period	Obligations	
09/01/78-10/31/80	FY80: TOTAL: \$75,651	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Roulier, J. A.	LARC/Park, S. K.	22-Computer Science
McAllister, D. F.	LARC/Smith, R. E.	

NSG 1562 North Carolina State Univ. - Raleigh 3394
Study of the effects of high energy radiation on the mechanical properties of graphite-fiber reinforced epoxy resins

Period	Obligations	
10/01/78-12/31/81	FY80: \$103,111 TOTAL: \$141,291	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Fornes, R. E.	LARC/Long, E. R., Jr.	13-Physics
Memory, J. D.		

NSG 1584 North Carolina State Univ. - Raleigh 3395
Optimum nacelle shapes and flow port locations for minimum drag and effective engine cooling for general aviation aircraft

Period	Obligations	
01/01/79-12/31/80	FY80: \$55,000 TOTAL: \$106,258	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Smetana, F. O.	LARC/Crane, H. L.	41-Aero Engr
	LARC/Judd, J. H.	

**NASA'S UNIVERSITY PROGRAM
NORTH CAROLINA (Continued)**

NSG 1588 North Carolina State Univ. - Raleigh **3396**
Large reflector antenna analysis research
Period *Obligations*
01/01/79-12/31/80 FY80: \$30,806 TOTAL: \$69,683
Pnn Invest *NASA Tech Officer* *CASE Category*
Kauffman, J. F. LARC/Cockrell, C. R. 45-Elec Engr
LARC/Beck, F. B.

NSG 4025 North Carolina State Univ. - Raleigh **3397**
An investigation to improve the performance of a technique to identify lift, drag and power simultaneously from flight test data
Period *Obligations*
07/23/79-07/22/80 FY80: TOTAL: \$47,804
Pnn Invest *NASA Tech Officer* *CASE Category*
Smetana, F. O. DFRC/Kurtenbach, F. J. 41-Aero Engr
DFRC/Hliff, K. W.

NSG 2390 University of North Carolina-Greensboro **3398**
Automaticity and skill acquisition in a multiple task
Period *Obligations*
07/01/79-06/30/80 FY80: TOTAL: \$36,216
Pnn Invest *NASA Tech Officer* *CASE Category*
Regan, J. E. ARC/Curry, R. E. 69-Psych, NEC

NAGW 96 Wake Forest University **3399**
A study of the mechanism of thigmomorphogenesis in plants
Period *Obligations*
08/01/80-07/31/81 FY80: \$36,500 TOTAL: \$36,500
Pnn Invest *NASA Tech Officer* *CASE Category*
Jaffe, M. J. HD-SB/Halstead, T. W. 51-Biological Sci

NAS 2-10523 Wake Forest University **3400**
Life science experiment ARC 781-127, correlation macro and microcirculatory alterations during weightlessness
Period *Obligations*
01/17/80-04/30/81 FY80: \$10,447 TOTAL: \$10,447
Pnn Invest *NASA Tech Officer* *CASE Category*
Hutchins, P. M. ARC/Ferandin, J. 51-Biological Sci
ARC/Lee, R. C.

OHIO

NAG 5-64 Bowling Green State University **3401**
Investigation of emission line profiles in type I Seyfert galaxies
Period *Obligations*
06/01/80-05/31/81 FY80: \$1,370 TOTAL: \$1,370
Pnn Invest *NASA Tech Officer* *CASE Category*
Gregory, S. GSFC/Bogges, A. 11-Astronomy
Prak, R. L.
Stoner, R. E.

NAG 3-2 Case Western Reserve University **3402**
Improved and efficient laser anemometers
Period *Obligations*
11/01/79-10/31/80 FY80: \$50,333 TOTAL: \$50,333
Pnn Invest *NASA Tech Officer* *CASE Category*
Edwards, R. V. LERC/Seasholtz, R. G. 49-Engr, NEC

NAG 3-12 Case Western Reserve University **3403**
Dissolution transfer casting of biopolymers
Period *Obligations*
11/16/79-11/17/80 FY80: \$30,170 TOTAL: \$30,170
Pnn Invest *NASA Tech Officer* *CASE Category*
Gibbons, D. F. LERC/Weigand, A. J.
Picha, G. J. 56-Medical Sciences

NAG 3-24 Case Western Reserve University **3404**
Diamond II resistivity, dielectric constant, and tangent delta from 10 GHz to 100 GHz as well as thermal conductivity from 0 C to 500 C
Period *Obligations*
01/07/80-01/06/81 FY80: \$50,000 TOTAL: \$50,000
Pnn Invest *NASA Tech Officer* *CASE Category*
Hazony, D. LERC/Kosmahl, H. G. 13-Physics

NAG 3-30 Case Western Reserve University **3405**
Influence of cobalt on the microstructure and mechanical properties of MAR M-247
Period *Obligations*
01/28/80-01/27/83 FY80: \$59,991 TOTAL: \$59,991
Pnn Invest *NASA Tech Officer* *CASE Category*
Ebert, L. J. LERC/Gray, H. R. 47-Materials Engr

NAG 3-39 Case Western Reserve University **3406**
Constitutive equations for analysis and design of turbine engine hot section components
Period *Obligations*
04/01/80-03/31/81 FY80: \$44,912 TOTAL: \$44,912
Pnn Invest *NASA Tech Officer* *CASE Category*
Mendelson, A. LERC/Thompson, R. L. 47-Materials Engr

NAG 3-46 Case Western Reserve University **3407**
Crack initiation and early propagation under thermo-mechanical loading
Period *Obligations*
03/15/80-03/14/81 FY80: \$47,128 TOTAL: \$47,128
Pnn Invest *NASA Tech Officer* *CASE Category*
Manson, S. S. LERC/Halford, G. R. 47-Materials Engr
LERC/Hirschberg, M. H.

NAG 3-49 Case Western Reserve University **3408**
Stress generation in thermally grown oxide scales
Period *Obligations*
03/25/80-03/24/81 FY80: \$12,500 TOTAL: \$12,500
Pnn Invest *NASA Tech Officer* *CASE Category*
Ebert, L. J. LERC/Smialek, J. L. 47-Materials Engr

NASA'S UNIVERSITY PROGRAM
OHIO (Continued)

NAG 3-58 Case Western Reserve University 3409
Evolution and adherence of oxide films formed on NiAl and NiCrAl alloys
Period Obligations
06/15/80-06/14/83 FY80: \$59,940 TOTAL: \$59,940
Pnn Invest NASA Tech Officer CASE Category
Ebert, L. J. LERC/Smialek, J. L. 47-Materials Engr

NAG 3-61 Case Western Reserve University 3410
Model development for shock wave boundary layer interaction experiment
Period Obligations
04/24/80-04/23/81 FY80: \$21,200 TOTAL: \$21,200
Pnn Invest NASA Tech Officer CASE Category
Greber, I. LERC/Hingst, W. R. 41-Aero Engr

NAG 3-66 Case Western Reserve University 3411
Electrochemical fluorination of polymeric materials for high energy density aqueous and non-aqueous battery and fuel cell
Period Obligations
05/28/80-05/27/81 FY80: \$69,465 TOTAL: \$69,465
Pnn Invest NASA Tech Officer CASE Category
Liu, C. C. LERC/Hsu, L. C. 43-Chem Engr
LERC/Sanabria, O. D.

NAG 3-80 Case Western Reserve University 3412
Planar multijunction high voltage solar cells
Period Obligations
06/02/80-06/01/81 FY80: \$20,000 TOTAL: \$20,000
Pnn Invest NASA Tech Officer CASE Category
Kapoor, V. J. LERC/Evans, J. 13-Physics
Ko, W. H. LERC/Chai, A. T.
Valco, G.

NAG 3-97 Case Western Reserve University 3413
Mass and heat transfer characteristics of felt metals
Period Obligations
09/08/80-09/07/81 FY80: \$47,030 TOTAL: \$47,030
Pnn Invest NASA Tech Officer CASE Category
Dybbbs, A. LERC/Liebert, C. H. 46-Mech Engr
LERC/Ludwig, L. P.

NAG 3-101 Case Western Reserve University 3414
Computer program to minimize three-dimensional flight time tracks
Period Obligations
09/15/80-12/15/80 FY80: \$4,800 TOTAL: \$4,800
Pnn Invest NASA Tech Officer CASE Category
Parke, F. I. LERC/Steinberg, R. 41-Aero Engr

NAG 3-102 Case Western Reserve University 3415
Experiments on viscous flows on supersonic streams in XI Lewis supersonic wind tunnel
Period Obligations
09/15/80-03/15/82 FY80: \$30,000 TOTAL: \$30,000
Pnn Invest NASA Tech Officer CASE Category
Greber, I. LERC/Hingst, W. R. 41-Aero Engr

NAG 3-115 Case Western Reserve University 3416
Effect of morphological and mechanical parameters of ion splitters materials on the gingival seal of an oral implant model
Period Obligations
11/01/80-10/31/81 FY80: \$50,000 TOTAL: \$50,000
Pnn Invest NASA Tech Officer CASE Category
Hottel, T. LERC/Weigand, A. J. 56-Medical Sciences
LERC/Banks, B. A.

NAGW 31 Case Western Reserve University 3417
The infrared spectral analysis of CF₂Cl₂: Application to atmospheric detection and abundance measurements for planned in-site experiments
Period Obligations
02/01/80-01/31/81 FY80: \$29,995 TOTAL: \$29,995
Pnn Invest NASA Tech Officer CASE Category
Nordstrom, R. J. HD-EB/Toth, R. A. 31-Atmos Sci
HD-EB/Tilford, S. G.

NAGW 83 Case Western Reserve University 3418
Prenatal and postnatal development and functional differentiation of the vestibular system in normal, rotated and centrifuged rats and mice
Period Obligations
07/01/80-06/30/81 FY80: \$34,200 TOTAL: \$34,200
Pnn Invest NASA Tech Officer CASE Category
Keefe, J. R. HD-SB/Halstead, T. W. 51-Biological Sci

NAS 3-21046 Case Western Reserve University 3419
Spacelab experiment on surface tension driven convection
Period Obligations
09/16/77-12/31/79 FY80: TOTAL: \$97,730
Pnn Invest NASA Tech Officer CASE Category
Ostrack, S. LERC/Labus, T. M. 46-Mech Engr

NAS 3-21365 Case Western Reserve University 3420
Low sidelobe level low-cost Earth station antennas for the twelve GHz broadcasting satellite service
Period Obligations
06/06/78-06/06/79 FY80: TOTAL: \$59,601
Pnn Invest NASA Tech Officer CASE Category
Collins, R. E. LERC/Smetana, J. 49-Engr, NEC

NAS 3-21946 Case Western Reserve University 3421
Determination of fatigue characteristics of ion beam textured orthopedic implant alloy MP35N in a physiological solution
Period Obligations
06/11/79-07/30/80 FY80: \$4,491 TOTAL: \$14,622
Pnn Invest NASA Tech Officer CASE Category
Bahniuk, E. LERC/Wintucky, E. G. 49-Engr, NEC

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NAS 3-21965 Case Western Reserve University 3422
Vapor phase diamond growth technology

Period	Obligations	
09/21/79-10/20/80	FY80: TOTAL: \$17,360	
Prin Invest	NASA Tech Officer	CASE Category
Angus, J.	LERC/Riley, T. J.	12-Chemistry
Mann, J.	LERC/Myers, I. T.	

NAS 3-22259 Case Western Reserve University 3423
Biomedical application of ion thruster technology

Period	Obligations	
09/25/79-10/15/80	FY80: TOTAL: \$23,100	
Prin Invest	NASA Tech Officer	CASE Category
Gibbons, D. F.	LERC/Weigand, A. J.	19-Phys Sci, NEC

NAS 3-22342 Case Western Reserve University 3424
Design, fabricate and test prime focus feeders for parabolic Earth station antennas for the 12 GHz broadcast satellite service

Period	Obligations	
04/01/80-07/01/81	FY80: \$51,023 TOTAL: \$51,023	
Prin Invest	NASA Tech Officer	CASE Category
Collins, R. E.	LERC/Smetana, J.	19-Phys Sci, NEC

NAS 3-22443 Case Western Reserve University 3425
Center of excellence for biomedical application of ion thruster technology

Period	Obligations	
07/17/80-03/02/82	FY80: \$148,414 TOTAL: \$148,414	
Prin Invest	NASA Tech Officer	CASE Category
Gibbons, D. F.	LERC/Weigand, A. J.	
	LERC/Banks, B. A.	56-Medical Sciences

NAS 5-24144 Case Western Reserve University 3426
Axially grooved heat pipe study

Period	Obligations	
04/25/77-09/25/78	FY80: TOTAL: \$13,169	
Prin Invest	NASA Tech Officer	CASE Category
Kainotani, Y.	GSFC/Ollendorf, S.	46-Mech Engr
	GSFC/McIntosh, R.	

NAS 8-33015 Case Western Reserve University 3427
Surface tension driven convection phenomena experiment

Period	Obligations	
05/23/78-08/07/81	FY80: \$227,151 TOTAL: \$440,244	
Prin Invest	NASA Tech Officer	CASE Category
Ostrach, S.	MSFC/Schaefer, D. A.	13-Physics
Mann, J. A.	MSFC/Zwiener, J. M.	

NASW 3404 Case Western Reserve University 3428
Development of a high resolution gamma ray telescope

Period	Obligations	
01/01/80-12/31/80	FY80: \$118,347 TOTAL: \$118,347	
Prin Invest	NASA Tech Officer	CASE Category
Frye, G.	HD-SC/Gilman, D. A.	11-Astronomy
	HD-SC/Opp, A. G.	

NCC 3-4 Case Western Reserve University 3429
Interactive flow-field calculations in turbomachinery

Period	Obligations	
08/01/79-02/01/81	FY80: TOTAL: \$35,642	
Prin Invest	NASA Tech Officer	CASE Category
Reshotko, E.	LERC/Sockol, P. M.	41-Aero Engr

NCC 3-8 Case Western Reserve University 3430
Microprocessor control of a wind turbine

Period	Obligations	
04/15/80-04/14/81	FY80: \$129,090 TOTAL: \$129,090	
Prin Invest	NASA Tech Officer	CASE Category
Dybbs, A.	LERC/Fanner, H. G.	49-Engr, NEC
Kitchen, T. C.	LERC/Finnegan, P. M.	

NGR 36-027-064 Case Western Reserve University 3431
Study of effects of layer control on shock wave turbulent boundary layer interactions in supersonics inlets

Period	Obligations	
08/01/73-10/29/80	FY80: \$50,369 TOTAL: \$256,738	
Prin Invest	NASA Tech Officer	CASE Category
Reshotko, E.	LERC/Bishop, A. R.	41-Aero Engr

NGT 36-027-011 Case Western Reserve University 3432
Summer program of NASA-ASEE summer faculty fellowships

Period	Obligations	
12/16/69-03/31/81	FY80: \$191,160 TOTAL: \$1,447,093	
Prin Invest	NASA Tech Officer	CASE Category
Prahe, J. M.	HD-LU/Carter, C. H.	49-Engr, NEC

NGT 36-027-790 Case Western Reserve University 3433
Pre-co-op engineering education program

Period	Obligations	
08/01/79-07/31/80	FY80: TOTAL: \$6,224	
Prin Invest	NASA Tech Officer	CASE Category
Chenelle, D. W.	HD-LU/Pohly, J. G.	49-Engr, NEC
	LERC/Allen, R. P.	

NSG 2384 Case Western Reserve University 3434
Prediction of system invariants in the presence of failure

Period	Obligations	
06/01/79-05/31/81	FY80: \$30,649 TOTAL: \$60,250	
Prin Invest	NASA Tech Officer	CASE Category
Martin, C. F.	ARC/Doolin, B. F.	49-Engr, NEC

NSG 3040 Case Western Reserve University 35
Heat transfer characteristics of porous materials

Period	Obligations	
10/01/74-10/30/80	FY80: TOTAL: \$180,000	
Prin Invest	NASA Tech Officer	CASE Category
Dybbs, A.	LERC/Fortini, A.	47-Materials Engr

NASA'S UNIVERSITY PROGRAM
OHIO (Continued)

NSG 3085 Case Western Reserve University 3436
Demonstration experiment on utilization of buffer memory system for transmission of color video using moderate bandwidth communications satellite channels

Period	Obligations
10/23/75-11/19/80	FY80: \$53,999 TOTAL: \$572,510
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASF Category</i>
Claspy, P. C.	LERC/Stevens, G. H. 45-Elec Engr
Merat, F. L.	

NSG 3115 Case Western Reserve University 3437
Computer graphic techniques for visualizing and interpreting fluid flow models

Period	Obligations
06/30/76-06/29/79	FY80: TOTAL: \$48,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASF Category</i>
Lynch, W. C.	LERC/Anderson, B. H. 41-Aero Engr
Parke, F. R.	

NSG 3126 Case Western Reserve University 3438
Effect of surface texture by ion beam sputtering on implant biocompatibility and soft tissue attachment

Period	Obligations
10/01/76-03/31/80	FY80: TOTAL: \$40,577
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASF Category</i>
Gibbons, D. F.	LERC/Weigand, A. J. 49-Engr. NEC
	LERC/Banks, B. A.

NSG 3131 Case Western Reserve University 3439
Adaptation of ion beam technology to microfabrication of solid state devices and transducers

Period	Obligations
11/01/76-01/30/80	FY80 TOTAL: \$78,139
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASF Category</i>
Smith, S.	LERC/Mirtich, M. J. 19-Phys Sci, NEC
Ko, W. H.	LERC/Banks, B. A.

NSG 3140 Case Western Reserve University 3440
Spectroscopic investigation of the effects of moisture on epoxy resins

Period	Obligations
02/01/77-01/31/80	FY80: TOTAL: \$57,342
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASF Category</i>
Koenig, J. L.	LERC/Serafini, T. T. 12-Chemistry
	LERC/Lauver, R. W.

NSG 3151 Case Western Reserve University 3441
The evaluation of surface texturing, by ion beam sputtering, on the mechanical fixation and biological compatibility of orthopedic alloys in bone

Period	Obligations
05/01/77-06/29/81	FY80 TOTAL: \$28,569
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASF Category</i>
Gibbons, D. F.	LERC/Weigand, A. G. 56-Medical Sciences

NSG 3197 Case Western Reserve University 3442
Secondary electron emission yield

Period	Obligations
07/01/78-06/29/81	FY80: \$49,963 TOTAL: \$148,217
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASF Category</i>
Gordan, W. L.	LERC/Purvis, C. K. 13-Physics
Hoffman, R. W.	LERC/Stevens, N. J.

NSG 3203 Case Western Reserve University 3443
The development of sensors and techniques for in-situ water quality monitoring

Period	Obligations
07/01/78-07/28/80	FY80: TOTAL: \$59,934
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASF Category</i>
Liu, C. C.	LERC/Fordyce, J. S. 43-Chem Engr

NSG 3206 Case Western Reserve University 3444
Experiments on jet mixing in compact reverse flow combustor configurations

Period	Obligations
07/01/78-06/30/81	FY80: TOTAL: \$67,850
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASF Category</i>
Greber, I.	LERC/Riddlebaugh, S. M. 41-Aero Engr

NSG 3207 Case Western Reserve University 3445
Shaded computer graphic techniques for visualizing and interpreting analytic fluid flow models

Period	Obligations
07/01/78-07/01/81	FY80: TOTAL: \$53,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASF Category</i>
Parke, F. I.	LERC/Anderson, B. H. 41-Aero Engr

NSG 3211 Case Western Reserve University 3446
Experimental investigation of shock-wave-boundary layer interaction

Period	Obligations
06/01/78-05/30/81	FY80 TOTAL: \$58,690
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASF Category</i>
Greber, I.	LERC/Hingsi, W. R. 41-Aero Engr

NSG 3221 Case Western Reserve University 3447
Convection in crystal growth and g-jitter

Period	Obligations
09/01/78-12/31/80	FY80: TOTAL: \$100,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASF Category</i>
Ostrach, S.	LERC/Cochran, T. H. 13-Physics
	LERC/Cochran, T. H.

NSG 3230 Case Western Reserve University 3448
Modeling of transient operations of monolith catalytic combustors

Period	Obligations
11/01/78-10/31/80	FY80: TOTAL: \$69,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASF Category</i>
Tlen, J. S.	LERC/Anderson, D. N. 46-Mech Engr
Reshotko, E.	

NASA'S UNIVERSITY PROGRAM
OHIO (Continued)

NSG 3241 Case Western Reserve University **3449**
Characterization of structure of a polymer with a magnetic resonance spectroscopy
Period Obligations
12/01/78-12/01/80 FY80: \$16,244 TOTAL: \$46,244
Prin Invest NASA Tech Officer CASE Category
Ritchey, W. LERC/Lauver, R. W. 12-Chemistry

NSG 3246 Case Western Reserve University **3450**
Anisotropy of directionally solidified nickle base superalloy monocrystals
Period Obligations
06/15/79-06/15/82 FY80: TOTAL: \$49,935
Prin Invest NASA Tech Officer CASE Category
Erert, L. J. LERC/Scheuermann, C. M. 47-Materials Engr

NSG 3251 Case Western Reserve University **3451**
Use of the method of lines in fracture mechanics analyses with application to curved crack fronts
Period Obligations
03/01/79-03/02/81 FY80: \$42,307 TOTAL \$77,097
Prin Invest NASA Tech Officer CASE Category
Mendelson, A. LERC/Brown, W. F., Jr. 46-Mech Engr

NSG 3252 Case Western Reserve University **3452**
Microstructure and mechanical properties of bulk and plasma sprayed Y2O3 partially stabilized zirconia
Period Obligations
04/02/79-03/31/81 FY80: \$50,184 TOTAL: \$80,174
Prin Invest NASA Tech Officer CASE Category
Ebert, L. J. LERC/Gedwill, M. A. 47-Materials Engr

NSG 3268 Case Western Reserve University **3453**
Performance of high temperature annular heat pipes
Period Obligations
03/30/79-06/30/80 FY80 TOTAL: \$19,902
Prin Invest NASA Tech Officer CASE Category
Kamotani, Y. LERC/Gideon, L. 47-Materials Engr

NSG 3271 Case Western Reserve University **3454**
Model development for shock wave boundary layer interaction experiments
Period Obligations
04/24/79-10/23/80 FY80 TOTAL \$32,110
Prin Invest NASA Tech Officer CASE Category
Greber, I. LERC/Hingst, W. R. 41-Aero Engr

NSG 3272 Case Western Reserve University **3455**
Molecular mechanism of thermal degradation of polyimide resins
Period Obligations
05/07/79-05/07/80 FY80 TOTAL: \$14,990
Prin Invest NASA Tech Officer CASE Category
Ishida, H. LERC/Lauver, R. W. 12-Chemistry
Koenig, J. L.

NSG 3276 Case Western Reserve University **3456**
Three-dimensional spectra and the mean rate of transfer of energy in turbulence
Period Obligations
05/15/79-06/14/81 FY80: \$54,935 TOTAL: \$89,925
Prin Invest NASA Tech Officer CASE Category
Koenig, J. L. LERC/Hsu, L. C. 12-Chemistry
LERC/Philipp, W. H.

NSG 3279 Case Western Reserve University **3457**
Thermal fatigue behavior of dies for aluminum die casting after deposition of various ion sputtered coatings
Period Obligations
06/01/79-02/28/81 FY80: TOTAL: \$12,000
Prin Invest NASA Tech Officer CASE Category
Wallace, J. F. LERC/Mirtich, M. J. 19-Phys Sci, NEC

NSG 3282 Case Western Reserve University **3458**
The influence of surface morphology modification by ion beam sputtering on the tissue response to percutaneous implants, of various compositions
Period Obligations
06/01/79-10/01/80 FY80: TOTAL: \$19,579
Prin Invest NASA Tech Officer CASE Category
Gibbons, D. F. LERC/Wiegand, A. J. 56-Medical Sciences

NSG 3288 Case Western Reserve University **3459**
Optical studies of lubrication and transfer films for prosthetic devices
Period Obligations
07/01/79-11/01/80 FY80: TOTAL: \$20,000
Prin Invest NASA Tech Officer CASE Category
Cahan, B. D. LERC/Jones, W. R. 12-Chemistry

NSG 3289 Case Western Reserve University **3460**
Ion beam texturing of polymers
Period Obligations
07/17/79-11/14/79 FY80 TOTAL: \$8,475
Prin Invest NASA Tech Officer CASE Category
Geil, K. H. LERC/Souey, J. S. 47-Materials Engr
Hurwitz, E. I.

NSG 3291 Case Western Reserve University **3461**
Self-diffusion of oxygen and aluminum in doped alumina
Period Obligations
09/01/79-08/30/81 FY80: \$34,941 TOTAL: \$67,941
Prin Invest NASA Tech Officer CASE Category
Halloran, J. W. LERC/Smialek, J. L. 47-Materials Engr
Cooper, A. R.

NSG 5392 Case Western Reserve University **3462**
Theoretical determination of structures, bending energies and vibrational frequencies
Period Obligations
07/01/79-12/31/79 FY80 TOTAL \$4,025
Prin Invest NASA Tech Officer CASE Category
Anderson, A. B. GSFC/Donn, B. D. 12-Chemistry

NASA'S UNIVERSITY PROGRAM
OHIO (Continued)

NSG 7035 Case Western Reserve University **3463**
Development of a generalized technology for life prediction in the high-temperature creep and fatigue range
Period *Obligations*
05/01/74-05/01/80 **FY80:** **TOTAL: \$218,269**
Prin Invest *NASA Tech Officer* *CASE Category*
Powell, N. L. LERC/Hirschberg, M. H. 47-Materials Engr
LERC/Halford, G. R.

NAG 3-23 Cleveland State University **3464**
Theory and design of the tandem junction solar cell with front and back collection
Period *Obligations*
01/15/80-12/15/80 **FY80: \$14,087** **TOTAL: \$14,087**
Prin Invest *NASA Tech Officer* *CASE Category*
Goradia, C. LERC/Baraona, C. R. 13-Physics

NAG 3-84 Cleveland State University **3465**
Development of optimization techniques for control of vehicle stored energy and optimization of hybrid vehicle propulsion section
Period *Obligations*
06/16/80-12/16/81 **FY80: \$99,138** **TOTAL: \$99,138**
Prin Invest *NASA Tech Officer* *CASE Category*
Donoghue, J. F. ARC/Beach, R. F. 49-Engr, NEC
Burghart, J. H.

NAG 3-106 Cleveland State University **3466**
Effect of stress on ultrasonic pulses in fiber reinforced composites
Period *Obligations*
10/01/80-09/30/81 **FY80: \$38,300** **TOTAL: \$38,300**
Prin Invest *NASA Tech Officer* *CASE Category*
Hemann, J. H. LERC/Nary, A. 47-Materials Engr

NAG 3-108 Cleveland State University **3467**
High phase order induction motors
Period *Obligations*
09/29/80-09/28/81 **FY80: \$31,570** **TOTAL: \$31,570**
Prin Invest *NASA Tech Officer* *CASE Category*
Klingshirn, E. A. LERC/McBrien, E. F. 45-Elec Engr

NAS 3-18547 Cleveland State University **3468**
Synthesis and optimization of spur gear tooth profile shapes for high load capacity
Period *Obligations*
06/04/74-05/31/80 **FY80** **TOTAL: \$69,980**
Prin Invest *NASA Tech Officer* *CASE Category*
Kasuba, R. LERC/Townsend, D. P. 46-Mech Engr

NCC 3-3 Cleveland State University **3469**
Graduate study program in unsteady heat transfer in turbomachinery
Period *Obligations*
09/29/79-09/30/82 **FY80:** **TOTAL: \$67,512**
Prin Invest *NASA Tech Officer* *CASE Category*
Gorla, R. S. LERC/Simoneau, R. J. 46-Mech Engr
LERC/Graham, R. W.

NCC 3-6 Cleveland State University **3470**
Power train development/analysis large scale wind turbine supporting research and technology program
Period *Obligations*
02/15/80-02/14/81 **FY80: \$113,842** **TOTAL: \$113,842**
Prin Invest *NASA Tech Officer* *CASE Category*
Kasuba, R. LERC/Savino, J. M. 46-Mech Engr
Penney, D. L. LERC/Finnegan, D.

NGT 36-025-780 Cleveland State University **3471**
Precooperative engineering education program
Period *Obligations*
10/01/77-07/31/80 **FY80:** **TOTAL: \$6,669**
Prin Invest *NASA Tech Officer* *CASE Category*
Bennett, W. R. HD-LU/Pohly, J. G. 49-Engr, NEC
LERC/Allen, R. P.

NSG 3155 Cleveland State University **3472**
Dense silicon-nitride bodies without additives
Period *Obligations*
06/30/77-03/30/81 **FY80** **TOTAL: \$44,850**
Prin Invest *NASA Tech Officer* *CASE Category*
Yeh, H. C. LERC/Ashbrook, R. L. 43-Chem Engr

NSG 3222 Cleveland State University **3473**
Investigation of power and energy measuring devices for monitoring non-sinusoidal ac and pulsed dc signals
Period *Obligations*
10/01/78-10/01/79 **FY80:** **TOTAL: \$32,986**
Prin Invest *NASA Tech Officer* *CASE Category*
Maisei, J. F. LERC/Niederding, W. C. 45-Elec Engr
LERC/Weikle, D. H.

NSG 3223 Cleveland State University **3474**
Control of a hybrid system with flywheel energy storage and continuously variable transmission
Period *Obligations*
10/01/78-06/30/80 **FY80:** **TOTAL: \$56,819**
Prin Invest *NASA Tech Officer* *CASE Category*
Burghart, J. H. LERC/Beach, R. F. 49-Engr, NEC
Donoghue, J. F.

NSG 3257 Cleveland State University **3475**
A study of dynamic energy equations
Period *Obligations*
03/15/79-10/30/80 **FY80:** **TOTAL: \$29,868**
Prin Invest *NASA Tech Officer* *CASE Category*
Larson, V. H. LERC/Lorenzo, C. F. 46-Mech Engr
Loparo, J. A.

NASA'S UNIVERSITY PROGRAM
OHIO (Continued)

NSG 3259 **Cleveland State University** **3476**
Nitridation kinetics and reaction sintering of silicon nitride
Period *Obligations*
03/26/79-03/26/81 **FY80:** **TOTAL: \$51,119**
Prin Invest *NASA Tech Officer* *CASE Category*
Yeh, H. C. LERC/Herbell, T. P. 47-Materials Engr

NSG 3308 **Cleveland State University** **3477**
Development of a data system for multi channel spectrometers
Period *Obligations*
09/14/79-09/13/80 **FY80:** **TOTAL: \$52,395**
Prin Invest *NASA Tech Officer* *CASE Category*
Megargle, R. LERC/Gordon, W. A. 12-Chemistry

NAS 3-21945 **Kent State University** **3478**
Identification of new application for ion beam technology
Period *Obligations*
06/28/79-11/26/80 **FY80: \$17,018** **TOTAL: \$36,018**
Prin Invest *NASA Tech Officer* *CASE Category*
Gelerinter, E. LERC/Wintucky, E. G. 19-Phys Sci, NEC
Spielberg, N.

NAS 5-26111 **Kent State University** **3479**
Automated techniques for mapping urban land cover with remote sensing data
Period *Obligations*
03/31/80-11/30/80 **FY80: \$8,951** **TOTAL: \$8,951**
Prin Invest *NASA Tech Officer* *CASE Category*
Craig, K. GSFC/Toll, D. 32-Geological Sci

NSG 2013 **Kent State University** **3480**
Transport of trace contaminants through porous media
Period *Obligations*
03/15/74-12/31/81 **FY80:** **TOTAL: \$9,700**
Prin Invest *NASA Tech Officer* *CASE Category*
Madey, R. ARC/Quattrone, P. D. 12-Chemistry

NSG 3159 **Kent State University** **3481**
Evaluation of surface alignment mechanisms for nematic liquid crystals
Period *Obligations*
08/01/77-11/01/79 **FY80:** **TOTAL: \$16,013**
Prin Invest *NASA Tech Officer* *CASE Category*
Johnson, D. L. LERC/Wintucky, F. G. 47-Materials Engr
LERC/Banks, B. A.

NAS 9-14538 **Miami University** **3482**
Research on a possible mechanism of O-g sickness
Period *Obligations*
02/15/75-03/01/81 **FY80: \$31,529** **TOTAL: \$159,500**
Prin Invest *NASA Tech Officer* *CASE Category*
Brooks, M. JSC/Homick, J. L. 59-Life Sci, NEC
JSC/Reschke, M. F.

NAS 9-16049 **Miami University** **3483**
Life science flight experiment
Period *Obligations*
01/17/80-05/31/81 **FY80: \$9,384** **TOTAL: \$9,384**
Prin Invest *NASA Tech Officer* *CASE Category*
Parker, D. E. JSC/Evans, J. F. 59-Life Sci, NEC

NAS 9-16051 **Miami University** **3484**
Motion perceptions evoked by oscillating linear accelerator on Earth and in zero-gravity
Period *Obligations*
01/17/80-10/31/80 **FY80: \$27,109** **TOTAL: \$27,109**
Prin Invest *NASA Tech Officer* *CASE Category*
Parker, D. E. JSC/Evans, J. 59-Life Sci, NEC

NCC 1-12 **Miami University** **3485**
Basic research on radiation induced lasers
Period *Obligations*
05/15/79-07/31/81 **FY80: \$77,820** **TOTAL: \$141,356**
Prin Invest *NASA Tech Officer* *CASE Category*
Wells, W. E. LARC/Jalufka, N. W. 13-Physics

NAG 3-79 **Muskingum College** **3486**
Chemically modified electrodes
Period *Obligations*
06/09/80-06/08/81 **FY80: \$15,467** **TOTAL: \$15,467**
Prin Invest *NASA Tech Officer* *CASE Category*
Wallace, W. J. LERC/Charleston, L. J. 12-Chemistry

NSG 3278 **Muskingum College** **3487**
Chemically modified electrodes
Period *Obligations*
06/11/79-05/31/80 **FY80:** **TOTAL: \$7,100**
Prin Invest *NASA Tech Officer* *CASE Category*
Wallace, W. J. LERC/Charleston, L. J. 12-Chemistry

NAG 1-30 **Ohio State University** **3488**
Coordination and control of multiple-armed manipulation systems
Period *Obligations*
02/01/80-01/31/81 **FY80: \$32,545** **TOTAL: \$32,545**
Prin Invest *NASA Tech Officer* *CASE Category*
Klein, C. A. LARC/Woolley, C. T. 42-Astro Engr
LARC/Barker, L. K.

NAG 2-32 **Ohio State University** **3489**
Subsonic wing/fuselage aerodynamic study
Period *Obligations*
04/01/80-03/31/81 **FY80: \$48,785** **TOTAL: \$48,785**
Prin Invest *NASA Tech Officer* *CASE Category*
Gregorek, G. M. ARC/Hicks, R. M. 41-Aero Engr
Weislogel, G. S. ARC/Corsiglia, V. R.

NASA'S UNIVERSITY PROGRAM
OHIO (Continued)

NAG 2-34 **Ohio State University** **3490**
Zero modules and inverse system design

Period	Obligations	
04/01/80-03/31/81	FY80: \$16,729	TOTAL: \$16,729
Prin Invest	NASA Tech Officer	CASE Category
Wyman, B.	ARC/Doolin, B. F.	49-Engr, NEC

NAG 3-28 **Ohio State University** **3491**
Effects of ice formation on 2d aerodynamic shapes

Period	Obligations	
02/01/80-01/31/81	FY80: \$28,528	TOTAL: \$28,528
Prin Invest	NASA Tech Officer	CASE Category
Gregorek, G. M.	LERC/Shaw, R. J.	41-Aero Engr

NAG 3-36 **Ohio State University** **3492**
Vibration analysis of turbine engine blades

Period	Obligations	
05/01/80-04/30/81	FY80: \$44,410	TOTAL: \$44,410
Prin Invest	NASA Tech Officer	CASE Category
Leissa, A. W.	LERC/Brown, G. V.	46-Mech Engr
Lee, J. K.	LERC/Kielb, R. E.	

NAG 3-109 **Ohio State University** **3493**
Propeller/rotor icing study

Period	Obligations	
10/06/80-10/05/81	FY80: \$40,099	TOTAL: \$40,099
Prin Invest	NASA Tech Officer	CASE Category
Korkan, K. D.	LERC/Shaw, J.	41-Aero Engr

NAG 5-42 **Ohio State University** **3494**
Spectroscopic investigations of bright gaseous nebulae

Period	Obligations	
04/15/80-04/14/81	FY80: \$3,877	TOTAL: \$3,877
Prin Invest	NASA Tech Officer	CASE Category
Czyzak, S. J.	GSFC/Bogges, A.	11-Astronomy

NAG 5-52 **Ohio State University** **3495**
Ultraviolet studies of later type beryllium stars

Period	Obligations	
05/15/80-05/14/81	FY80: \$2,866	TOTAL: \$2,866
Prin Invest	NASA Tech Officer	CASE Category
Sletteback, A.	GSFC/Bogges, A.	11-Astronomy

NAS 1-14406 **Ohio State University** **3496**
General aviation low-speed airfoil design and development service

Period	Obligations	
06/30/76-06/30/81	FY80: \$25,000	TOTAL: \$373,107
Prin Invest	NASA Tech Officer	CASE Category
Gregorek, G. M.	LARC/McGhee, R. J.	41-Aero Engr
	LARC/Barnwell, R. W.	

NAS 1-15680 **Ohio State University** **3497**
Flight evaluation of the aeroacoustics of general aviation propellers

Period	Obligations	
01/04/79-01/21/81	FY80: \$35,000	TOTAL: \$105,489
Prin Invest	NASA Tech Officer	CASE Category
Gregorek, G. M.	LARC/Greene, G. C.	41-Aero Engr
Korkan, K. D.	LARC/Raney, J. P.	
Weislogel, G. S.		

NAS 1-15969 **Ohio State University** **3498**
Determine the IFR operation profile of the general aviation single pilot

Period	Obligations	
09/12/79-06/30/81	FY80:	TOTAL: \$61,000
Prin Invest	NASA Tech Officer	CASE Category
Weislogel, G. S.	LARC/Bergeron, H. P.	41-Aero Engr
Chapman, G. C.	LARC/Shughnessy, J. D.	

NAS 1-16388 **Ohio State University** **3499**
Bellanca skyrocket natural laminar flow flight research

Period	Obligations	
08/20/80-09/16/80	FY80: \$33,000	TOTAL: \$33,000
Prin Invest	NASA Tech Officer	CASE Category
Gregorek, G. M.	LARC/Holmes, B. J.	41-Aero Engr
Weislogel, G. S.		

NAS 2-10047 **Ohio State University** **3500**
An investigation in pilot and system response to critical in-flight events

Period	Obligations	
11/01/78-09/30/80	FY80:	TOTAL: \$106,017
Prin Invest	NASA Tech Officer	CASE Category
Rockwell, T. H.	ARC/Lauber, J. K.	69-Psych, NEC
Giffin, W. C.	ARC/Billings, C. E.	

NAS 5-22575 **Ohio State University** **3501**
Communications link characterization experiment

Period	Obligations	
09/02/75-06/30/80	FY80: \$136,519	TOTAL: \$483,936
Prin Invest	NASA Tech Officer	CASE Category
Hodge, D. B.	GSFC/Hirschmann, E.	45-Elec Engr

NAS 5-25888 **Ohio State University** **3502**
Utilization of range-difference observation in geodynamics

Period	Obligations	
09/19/79-12/18/82	FY80: \$40,000	TOTAL: \$60,000
Prin Invest	NASA Tech Officer	CASE Category
Mueller, I. I.	GSFC/Stephanides, C. C.	32-Geological Sci

NASW 3149 **Ohio State University** **3503**
Solar terrestrial climatic relationship symposium

Period	Obligations	
05/15/78-12/31/79	FY80:	TOTAL: \$24,946
Prin Invest	NASA Tech Officer	CASE Category
Seliga, T. A.	HD-ST/Tilford, S. G.	31-Atmos Sci
	HD-ST/Simon, N. K.	

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NASA'S UNIVERSITY PROGRAM

OHIO (Continued)

NASW 3393 **Ohio State University** **3504**
Study involving communications link characterizations experiments with the COMSTAR satellite
Period *Obligations*
06/14/80-03/14/81 **FY80: \$200,000** **TOTAL: \$200,000**
Prin. Invest *NASA Tech Officer* *CASE Category*
Hodge, D. B. HD-EC/Ippolito, L. J. 45-Elec Engr

NCA 2-565001 **Ohio State University** **3505**
An introductory study of the H-force rotor
Period *Obligations*
11/01/79-01/31/81 **FY80: \$33,569** **TOTAL: \$33,569**
Prin. Invest *NASA Tech Officer* *CASE Category*
Velkoff, H. R. ARC/Stroub, R. H. 41-Aero Engr
ARC/Lemke, L. G.

NCA 2-565901 **Ohio State University** **3506**
Relaxation algorithms applied to grid generation (ADI)
Period *Obligations*
07/01/79-06/30/81 **FY80: \$18,720** **TOTAL: \$36,720**
Prin. Invest *NASA Tech Officer* *CASE Category*
Nakamura, S. ARC/Holst, T. L. 41-Aero Engr

NGR 36-008-161 **Ohio State University** **3507**
The direct combination of satellite and gravity data
Period *Obligations*
05/01/71-02/28/81 **FY80: \$34,144** **TOTAL: \$281,169**
Prin. Invest *NASA Tech Officer* *CASE Category*
Rapp, R. H. GSFC/Patterson, G. C. 32-Geological Sci
GSFC/Lerch, F. J.

NGT 36-008-007 **Ohio State University** **3508**
Training of post graduate medical students in field of aerospace medicine
Period *Obligations*
04/02/64-08/31/78 **FY80:** **TOTAL: \$606,066**
Prin. Invest *NASA Tech Officer* *CASE Category*
Keller, M. D. HD-LU/Nicogossian, A. E. 56-Medical Sciences

NSG 1498 **Ohio State University** **3509**
Analysis of airborne antenna patterns
Period *Obligations*
01/16/78-01/15/81 **FY80:** **TOTAL: \$119,511**
Prin. Invest *NASA Tech Officer* *CASE Category*
Burnside, W. D. LARC/Gureath, M. C. 45-Elec Engr
LARC/Croswell, W. F.

NSG 1613 **Ohio State University** **3510**
Radar cross section studies
Period *Obligations*
05/01/79-04/30/81 **FY80: \$74,979** **TOTAL: \$124,908**
Prin. Invest *NASA Tech Officer* *CASE Category*
Peters, L. LARC/Gilreath, M. C. 45-Elec Engr
Burnside, W. D.

NSG 1620 **Ohio State University** **3511**
Applications of a kinesthetic tactual display for aircraft control
Period *Obligations*
05/16/79-08/15/80 **FY80:** **TOTAL: \$40,000**
Prin. Invest *NASA Tech Officer* *CASE Category*
Gilson, R. D. LARC/Holmes, B. J. 41-Aero Engr
Shulman, H. G. LARC/Brown, P. W.

NSG 1622 **Ohio State University** **3512**
Viscous interaction effects on airfoil performances
Period *Obligations*
07/01/79-06/30/81 **FY80: \$39,876** **TOTAL: \$79,860**
Prin. Invest *NASA Tech Officer* *CASE Category*
Burggraf, O. R. LARC/Everhart, J. L. 41-Aero Engr
LARC/South, J. C.

NSG 2162 **Ohio State University** **3513**
Electronic search technology applicable to the search for extraterrestrial intelligence problem
Period *Obligations*
06/01/76-01/31/81 **FY80: \$15,000** **TOTAL: \$50,181**
Prin. Invest *NASA Tech Officer* *CASE Category*
Dixon, R. S. ARC/Wolfe, J. H. 45-Elec Engr
ARC/Billingham, J.

NSG 2175 **Ohio State University** **3514**
Laboratory infrared research relevant to atmospheric and planetary studies
Period *Obligations*
10/01/76-10/01/81 **FY80:** **TOTAL: \$156,238**
Prin. Invest *NASA Tech Officer* *CASE Category*
Rao, K. N. ARC/Boese, R. W. 13-Physics

NSG 2179 **Ohio State University** **3515**
Study of tactual sensing and transmittal of information
Period *Obligations*
09/01/76-03/31/81 **FY80: \$36,163** **TOTAL: \$191,846**
Prin. Invest *NASA Tech Officer* *CASE Category*
Jagacinski, R. J. ARC/Dunn, R. S. 69-Psych, NEC

NSG 2220 **Ohio State University** **3516**
Environmental and genetic effects on gravity receptors: A morphological, physiological and behavioral study
Period *Obligations*
05/01/77-10/31/80 **FY80: \$40,000** **TOTAL: \$118,849**
Prin. Invest *NASA Tech Officer* *CASE Category*
Lim, D. J. ARC/Mehler, W. R. 51-Biological Sci

NSG 2298 **Ohio State University** **3517**
Experimental analyses of trailing edge flows
Period *Obligations*
02/01/78-01/31/81 **FY80: \$70,625** **TOTAL: \$211,388**
Prin. Invest *NASA Tech Officer* *CASE Category*
Petrie, S. L. ARC/Marvin, J. G. 41-Aero Engr
Korkan, K. D. ARC/McDevitt, J. B.
Hoffmann, M.

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NSG 3164 **Ohio State University** **3518**
Deformation structures in metal crystals due to wear and machining at high speed

Period	Obligations	
12/01/77-12/31/80	FY80: \$29,643	TOTAL: \$77,810
Prin Invest	NASA Tech Officer	CASE Category
Black, J. T.	LERC/Bill, R. C.	47-Materials Engr
	LERC/Ludwig, L. P.	

NSG 5265 **Ohio State University** **3524**
Basic research for the Earth dynamics program

Period	Obligations	
04/01/78-01/31/82	FY80: \$60,000	TOTAL: \$245,000
Prin Invest	NASA Tech Officer	CASE Category
Mueller, I. I.	GSFC/Holweck, E. C.	32-Geological Sci
Uotila, U. A.		

NSG 3235 **Ohio State University** **3519**
Mechanism of fiber release during pyrolysis of carbon fiber reinforced plastics

Period	Obligations	
12/01/78-11/30/81	FY80:	TOTAL: \$93,186
Prin Invest	NASA Tech Officer	CASE Category
Smith, E. E.	LERC/Bowles, K. J.	49-Engr, NEC
	LERC/Serafini, T. T.	

NSG 5275 **Ohio State University** **3525**
Research of altimeter data in order to improve existing gravity models

Period	Obligations	
05/15/78-09/30/79	FY80:	TOTAL: \$30,000
Prin Invest	NASA Tech Officer	CASE Category
Schmidt, E. G.	GSFC/Smith, D. E.	32-Geological Sci

NSG 3247 **Ohio State University** **3520**
Propeller aero-acoustic methodology

Period	Obligations	
01/15/79-01/14/81	FY80: \$100,000	TOTAL: \$197,104
Prin Invest	NASA Tech Officer	CASE Category
Gregorek, G. M.	LERC/Mitchell, G. A.	41-Aero Engr
Korkan, K. D.		

NSG 5299 **Ohio State University** **3526**
A search for variations in the spectrum

Period	Obligations	
08/15/78-09/14/81	FY80:	TOTAL: \$1,735
Prin Invest	NASA Tech Officer	CASE Category
Stettebak, A. E.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 3269 **Ohio State University** **3521**
In search of a theoretical foundation for quantitative ultrasonic measurement of fracture toughness

Period	Obligations	
05/01/79-02/06/81	FY80: \$37,000	TOTAL: \$47,887
Prin Invest	NASA Tech Officer	CASE Category
Fu, L. S.	LERC/Vary, A.	47-Materials Engr

NSG 5368 **Ohio State University** **3527**
Research of binary systems and composite sources involving cool and hot components

Period	Obligations	
06/01/79-05/31/82	FY80: \$10,000	TOTAL: \$17,700
Prin Invest	NASA Tech Officer	CASE Category
Wing, R. F.	GSFC/Bogges, A.	11-Astronomy
Kondo, Y.		
Stencel, R. E.		

NSG 3302 **Ohio State University** **3522**
The application of optical computing techniques to test engine controls

Period	Obligations	
08/01/79-08/01/81	FY80: \$59,967	TOTAL: \$99,931
Prin Invest	NASA Tech Officer	CASE Category
Collins, S. A., Jr.	LERC/Baumbilk, R. J.	45-Elec Engr
Fabtei, S.	LERC/Sellers, J. F.	

NSG 7479 **Ohio State University** **3528**
Investigation of infrared spectra of atmospheric gases to support stratospheric spectroscopic observations

Period	Obligations	
11/01/78-10/31/80	FY80: \$56,634	TOTAL: \$106,634
Prin Invest	NASA Tech Officer	CASE Category
Shaw, J. H.	HD-EB/Toth, R. A.	31-Atmos Sci
	HD-EB/Seals, R. K.	

NSG 5247 **Ohio State University** **3523**
Exploratory observations of the ultraviolet spectra of late-type stars

Period	Obligations	
03/01/78-06/30/79	FY80:	TOTAL: \$9,187
Prin Invest	NASA Tech Officer	CASE Category
Wing, R. F.	GSFC/Bogges, A.	11-Astronomy
	GSFC/West, D. K.	

NGR 36-009-017 **Ohio University** **3529**
Air transportation systems: Emphasis on low frequency navigation

Period	Obligations	
02/26/71-11/30/82	FY80: \$90,947	TOTAL: \$691,405
Prin Invest	NASA Tech Officer	CASE Category
McFarland, R. H.	LARC/Bundick, W. T.	45-Elec Engr
	LARC/Downing, D. R.	

NASA'S UNIVERSITY PROGRAM **OHIO (Continued)**

NSG 7352 **Ohio University** **3530**
Study of mechanism of thigmomorphogenesis in plants with special reference to role of ethylene and its significance to research with plants in space
Period *Obligations*
06/05/77-06/14/80 **FY80: \$3,650 TOTAL: \$98,650**
Prin Invest *NASA Tech Officer* *CASE Categories*
Jaffe, M. J. HD-SB/Halstead, T. W. 51-Biological Sci

NAG 3-50 **University of Akron** **3531**
NASA LERC/Akron University graduate cooperative fellowship programs
Period *Obligations*
06/01/80-05/31/81 **FY80: \$30,000 TOTAL: \$30,000**
Prin Invest *NASA Tech Officer* *CASE Categories*
Simon, A. I. LERC/Chamis, C. C. 41-Aero Engr
Fertis, D. G. LERC/Johns, R. H.

NAG 3-54 **University of Akron** **3532**
Self adaptive solutions strategies
Period *Obligations*
08/01/80-07/31/81 **FY80: \$30,000 TOTAL: \$30,000**
Prin Invest *NASA Tech Officer* *CASE Categories*
Padovan, J. LERC/Chamis, C. C. 46-Mech Engr

NAG 3-55 **University of Akron** **3533**
Helicopter transmission reliability model
Period *Obligations*
08/01/80-07/31/81 **FY80: \$36,288 TOTAL: \$36,288**
Prin Invest *NASA Tech Officer* *CASE Categories*
Savage, M. LERC/Coy, J. J. 46-Mech Engr

NAS 9-10043 **University of Akron** **3534**
Life science experiment
Period *Obligations*
01/17/80-05/31/81 **FY80: \$14,120 TOTAL: \$14,120**
Prin Invest *NASA Tech Officer* *CASE Categories*
Herron, D. F. JSC/French, B. O. 59-Life Sci, NEC

NGT 36-001-000 **University of Akron** **3535**
Optimization structural analysis and dynamics
Period *Obligations*
09/01/80-08/31/81 **FY80: \$11,000 TOTAL: \$11,000**
Prin Invest *NASA Tech Officer* *CASE Categories*
Fertis, D. G. LERC/Chamis, C. C. 44-Civil Engr

NGT 36-001-001 **University of Akron** **3536**
Training grant for algorithms for nonlinear problems
Period *Obligations*
09/01/80-08/31/81 **FY80: \$11,000 TOTAL: \$11,000**
Prin Invest *NASA Tech Officer* *CASE Categories*
Simon, A. I. LERC/Chamis, C. C. 44-Civil Engr

NSG 3283 **University of Akron** **3537**
Finite elements for rotor/stator interactive forces in general engine dynamic simulator
Period *Obligations*
08/31/79-07/31/81 **FY80: \$80,000 TOTAL: \$131,950**
Prin Invest *NASA Tech Officer* *CASE Categories*
Adams, M. L. LERC/Chamis, C. C. 41-Aero Engr
Padovan, J. LERC/Hirschbein, M. S.
Pertis, D. G.

NAG 1-8 **University of Cincinnati** **3538**
Spline collocation for viscous flow over-after body configurations
Period *Obligations*
11/01/79-10/31/80 **FY80: \$34,998 TOTAL: \$34,998**
Prin Invest *NASA Tech Officer* *CASE Categories*
Rubin, S. S. LARC/Swanson, R. C. 41-Aero Engr
LARC/Putnam, L. F.

NAG 2-38 **University of Cincinnati** **3539**
Flap-lag-torsional dynamics of extensional and intensional rotor blades in hover and in forward flight
Period *Obligations*
07/01/80-06/30/81 **FY80: \$31,658 TOTAL: \$31,658**
Prin Invest *NASA Tech Officer* *CASE Categories*
CrespoDaSilva, M. R. ARC/Hodges, D. H. 41-Aero Engr
ARC/Ormiston, R. A.

NAG 3-26 **University of Cincinnati** **3540**
Experimental study of radial turbine scrolls
Period *Obligations*
03/01/80-03/01/81 **FY80: \$37,230 TOTAL: \$37,230**
Prin Invest *NASA Tech Officer* *CASE Categories*
Tabakoff, W. LERC/Glassman, A. J. 41-Aero Engr

NAG 3-52 **University of Cincinnati** **3541**
Analytical study of the compressible three dimensional flow in turbine scrolls
Period *Obligations*
03/27/80-03/26/81 **FY80: \$41,486 TOTAL: \$41,486**
Prin Invest *NASA Tech Officer* *CASE Categories*
Hamed, A. LERC/Katsanis, T. 41-Aero Engr
Baskharone, F. A.

NAS 3-21609 **University of Cincinnati** **3542**
Viscous flow analysis in turbomachine rotors
Period *Obligations*
02/27/79-12/10/79 **FY80 TOTAL: \$25,000**
Prin Invest *NASA Tech Officer* *CASE Categories*
Tabakoff, W. LERC/McFarland, F. R. 41-Aero Engr
Hamed, A. LERC/Sockol, P. M.

NASA'S UNIVERSITY PROGRAM

OHIO (Continued)

NCA 2-130801 University of Cincinnati 3543
Design and analysis of closed loop guidance laws for VTOL and STOL vehicles
Period *Obligations*
08/15/78-11/15/80 FY80: \$19,755 TOTAL: \$34,167
Prin Invest NASA Tech Officer CASE Category
Slater, G. L. ARC/Erzberger, H. 41-Aero Engr

NCA 2-130901 University of Cincinnati 3544
Development of a parabolized Navier-Stokes solver and numerical coordinate generator for subsonic and transonic plane flows
Period *Obligations*
06/01/79-05/31/81 FY80: \$26,839 TOTAL: \$39,216
Prin Invest NASA Tech Officer CASE Category
Davis, R. T. ARC/Rakich, J. V. 41-Aero Engr

NG1 36-004-800 University of Cincinnati 3545
Graduate student training program in computational fluid dynamic
Period *Obligations*
07/01/80-12/31/80 FY80: \$75,000 TOTAL: \$75,000
Prin Invest NASA Tech Officer CASE Category
Rubin, S. G. HD-RT/Graves, R. A. 41-Aero Engr

NSG 1185 University of Cincinnati 3546
Geometric modeling and analysis of rod-like large space structures
Period *Obligations*
05/01/75-10/31/81 FY80: \$89,466 TOTAL: \$182,883
Prin Invest NASA Tech Officer CASE Category
Nayfeh, A. H. IARC/Walz, J. 49-Engr, NEC
IARC/Anderson, M.

NSG 1486 University of Cincinnati 3547
Investigation of improved modal parameter estimation techniques
Period *Obligations*
01/16/78-02/28/81 FY80: \$48,412 TOTAL: \$122,314
Prin Invest NASA Tech Officer CASE Category
Brown, D. L. IARC/Monteith, J. H. 46-Mech Engr
IARC/Pappa, R. S.

NSG 3022 University of Cincinnati 3548
Investigation of a new family of semiconductor diodes based upon bulk effects of deep impurities
Period *Obligations*
07/01/74-09/29/81 FY80: \$81,063 TOTAL: \$222,412
Prin Invest NASA Tech Officer CASE Category
Henderson, H. T. LERC/Sundberg, G. R. 45-Elec Engr

NSG 3024 University of Cincinnati 3549
Research into the use of silane pyrolytic deposition methods for SiO2 growth in the construction of stable high energy density capacitors
Period *Obligations*
07/01/74-09/29/82 FY80: \$40,148 TOTAL: \$135,266
Prin Invest NASA Tech Officer CASE Category
Nevin, J. H. LERC/Riley, T. J. 45-Elec Engr
LERC/Myers, I. T.

NSG 3091 University of Cincinnati 3550
Study of suitable isomers for gamma ray lasers
Period *Obligations*
12/15/75-06/01/79 FY80: TOTAL: \$34,268
Prin Invest NASA Tech Officer CASE Category
Selberg, B. P. LERC/Blue, J. W. 13-Physics
Cronin, D. L. LERC/Leonard, R. F.

NSG 3147 University of Cincinnati 3551
High-temperature low-cycle fatigue and crack propagation
Period *Obligations*
06/01/77-05/31/80 FY80: TOTAL: \$80,652
Prin Invest NASA Tech Officer CASE Category
Antolovich, S. D. LERC/Miner, R. V. 47-Materials Engr

NSG 3188 University of Cincinnati 3552
Investigations into the geometry of straight and spiral bevel gears
Period *Obligations*
04/01/78-03/29/81 FY80: \$30,000 TOTAL: \$55,000
Prin Invest NASA Tech Officer CASE Category
Huston, R. L. LERC/Coy, J. J. 46-Mech Engr

NSG 3218 University of Cincinnati 3553
Study of environmental solid particle effects on axial flow compressor
Period *Obligations*
11/15/78-11/15/81 FY80: TOTAL: \$59,667
Prin Invest NASA Tech Officer CASE Category
Tabakoff, W. LERC/Stubbs, R. M. 46-Mech Engr

NSG 3263 University of Cincinnati 3554
A mechanistic evaluation of deformation and fracture in high temperature low cycle fatigue
Period *Obligations*
03/26/79-03/25/81 FY80: \$30,331 TOTAL: \$59,910
Prin Invest NASA Tech Officer CASE Category
Antolovich, S. D. LERC/Hirschberg, M. H. 47-Materials Engr
LERC/Halford, G. R.

NASA'S UNIVERSITY PROGRAM
OHIO (Continued)

NSG 3267 University of Cincinnati **3555**
Analysis of internal viscous flows using theory of spines and implicit numerical methods

Period	Obligations	
04/02/79-03/31/81	FY80: \$35,000	TOTAL: \$65,000
Prin Invest	NASA Tech Officer	CASE Category
Ghia, K. N.	LERC/Kao, H. C.	41-Aero Engr
Ghia, U.		

NAS 6-3086 University of Dayton **3561**
Service, materials and personnel necessary to provide correlative data efforts for WFC field measurements office

Period	Obligations	
03/01/80-05/31/81	FY80: \$102,452	TOTAL: \$102,452
Prin Invest	NASA Tech Officer	CASE Category
Luers, J. K.	WFC/Rossi, L. C.	31-Atmos Sci
Keller, J.	WFC/Perry, T. W.	
Jenks, F.		

DEN 3-189 University of Dayton **3556**
Study and review of permanent magnets for electric vehicle propulsion motors

Period	Obligations	
01/08/80-04/23/81	FY80: \$57,893	TOTAL: \$57,893
Prin Invest	NASA Tech Officer	CASE Category
Strnat, K. J.	LERC/Gourash, F.	47-Materials Engr

NAS 8-31294 University of Dayton **3562**
Examination of requirements and methods for reporting atmospheric information

Period	Obligations	
01/16/75-01/31/79	FY80:	TOTAL: \$166,471
Prin Invest	NASA Tech Officer	CASE Category
Leurs, J. K.	MSFC/Camp, D. W.	41-Aero Engr
Engler, N.	MSFC/Alexander, M. B.	

NAG 3-65 University of Dayton **3557**
Development of an airfoil ice accretion model

Period	Obligations	
04/28/80-04/27/81	FY80: \$41,951	TOTAL: \$41,951
Prin Invest	NASA Tech Officer	CASE Category
Luers, J. K.	LERC/Shaw, R. J.	41-Aero Engr
Dietenberger, M. A.		
Shirley, T. E.		

NAS 8-32111 University of Dayton **3563**
Turbulence study

Period	Obligations	
07/21/76-02/29/80	FY80:	TOTAL: \$139,602
Prin Invest	NASA Tech Officer	CASE Category
Luers, J. K.	MSFC/Camp, D. W.	41-Aero Engr
	MSFC/Alexander, M. B.	

NAS 3-21370 University of Dayton **3558**
Compilation of ATS-1, 3, 5, 6 and CTS user experiments documentation

Period	Obligations	
06/08/78-06/08/80	FY80: \$63,611	TOTAL: \$122,178
Prin Invest	NASA Tech Officer	CASE Category
Engler, N.	LERC/Gentile, L. C.	42-Astro Engr
Nash, J.		

NAS 8-33369 University of Dayton **3564**
Examination of requirements and methods for reporting atmospheric information

Period	Obligations	
02/12/79-12/11/80	FY80: \$45,869	TOTAL: \$85,869
Prin Invest	NASA Tech Officer	CASE Category
Luers, J. K.	MSFC/Camp, D. W.	31-Atmos Sci
	MSFC/Torkar, J. E.	

NAS 3-22353 University of Dayton **3559**
Preliminary static impact testing of boron aluminium composite tip panels

Period	Obligations	
01/24/80-01/23/81	FY80: \$49,843	TOTAL: \$49,843
Prin Invest	NASA Tech Officer	CASE Category
Bless, S. J.	LERC/McDaniels, D. L.	
Cross, D. L.		47-Materials Engr

NSG 6026 University of Dayton **3565**
Study of the effects of heavy rains on aircraft aerodynamics

Period	Obligations	
04/01/79-09/30/80	FY80: \$40,011	TOTAL: \$50,929
Prin Invest	NASA Tech Officer	CASE Category
Luers, J. K.	WFC/Melson, W. E., Jr	41-Aero Engr
	WFC/Parker, L. C.	

NAS 6-2456 University of Dayton **3560**
Atmospheric phenomena associated with falling spheres

Period	Obligations	
03/25/74-02/29/80	FY80: \$14,995	TOTAL: \$243,716
Prin Invest	NASA Tech Officer	CASE Category
Luers, J. K.	WFC/Duke, J. R.	31-Atmos Sci
	WFC/Schmidlin, F. J.	

NSG 7444 University of Dayton **3566**
An investigation of the cratering-induced motions occurring during the formation of bowl-shaped craters

Period	Obligations	
06/01/78-06/30/80	FY80:	TOTAL: \$48,004
Prin Invest	NASA Tech Officer	CASE Category
Piekutowski, A. J.	HD-SL/Quaide, W. L.	32-Geological Sci

NAG 3-42 University of Toledo **3567**
Digital television simulation facility

Period	Obligations	
03/31/80-03/30/81	FY80: \$31,328	TOTAL: \$31,328
Prin Invest	NASA Tech Officer	CASE Category
Kwatra, S. C.	LERC/Wythe, W.	45-Elec Engr

NASA'S UNIVERSITY PROGRAM
OHIO (Continued)

NAG 3-72 **University of Toledo** **3568**
Numerical simulation of heat transfer phenomena occurring during
deicing of aircraft components
Period *Obligations*
06/01/80-09/01/81 **FY80: \$43,000** **TOTAL: \$43,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Dewitt, K. J. LERC/Shaw, R. J. 41-Aero Engr
Keith, T. G.

NAG 5-67 **University of Toledo** **3509**
Studies of new bright chromospheric action stars
Period *Obligations*
06/01/80-12/31/81 **FY80: \$5,000** **TOTAL: \$5,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Bopp, B. W. GSFC/Bogges, A. 11-Astronomy

NAGW 89 **University of Toledo** **3570**
Properties of interstellar grains
Period *Obligations*
09/01/80-08/31/81 **FY80: \$16,069** **TOTAL: \$16,069**
Prin Invest *NASA Tech Officer* *CASE Category*
Witt, A. HD-SC/Weiler, E. J. 11-Astronomy
HD-SC/Bogges, N. W.

NCC 3-5 **University of Toledo** **3571**
Evaluation of the performance of wind turbine concepts and
operating wind turbines
Period *Obligations*
09/15/79-01/31/81 **FY80: TOTAL: \$99,993**
Prin Invest *NASA Tech Officer* *CASE Category*
Keith, T. G. LERC/Finnegan, P. M. 49-Engr, NEC
LERC/Cooksey, D.

NSG 3084 **University of Toledo** **3572**
Multi-variable control and sensor evaluation for integrated air
breathing propulsion systems
Period *Obligations*
01/01/76-01/01/80 **FY80: TOTAL: \$64,746**
Prin Invest *NASA Tech Officer* *CASE Category*
Leininger, G. G. LERC/Merrill, W. C. 45-Elec Engr
LERC/Zeller, J. R.

NSG 3121 **University of Toledo** **3573**
Mass transport phenomena between bubbles and dissolved gases
in liquids in a zero-g environment
Period *Obligations*
09/01/76-12/31/80 **FY80: \$14,999** **TOTAL: \$21,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Dewitt, K. J. LERC/Labus, T. L. 49-Engr, NEC

NSG 3139 **University of Toledo** **3574**
Stability analysis of wind turbines with long, flexible blades
Period *Obligations*
02/22/77-02/04/81 **FY80: \$55,001** **TOTAL: \$196,944**
Prin Invest *NASA Tech Officer* *CASE Category*
Koza, K. R. LERC/Brown, G. V. 41-Aero Engr
Keith, T. G. LERC/Chamis, C. C.

NSG 3156 **University of Toledo** **3575**
Analysis of the stirling engine oil pumping ring seal
Period *Obligations*
07/01/77-06/30/81 **FY80: \$32,994** **TOTAL: \$69,378**
Prin Invest *NASA Tech Officer* *CASE Category*
Keith, T. E. LERC/Cunningham, R. E. 46-Mech Engr
Smith, P. J.

NSG 3171 **University of Toledo** **3576**
Properties of the multivariable Nyquist array method
Period *Obligations*
11/01/77-10/31/79 **FY80: TOTAL: \$49,140**
Prin Invest *NASA Tech Officer* *CASE Category*
Leininger, G. G. LERC/Lehtinen, B. 45-Elec Engr

NSG 3250 **University of Toledo** **3577**
Thermodynamics of the potassium-sulfur-oxygen and related
items
Period *Obligations*
06/15/79-06/14/81 **FY80: \$42,214** **TOTAL: \$80,540**
Prin Invest *NASA Tech Officer* *CASE Category*
Edwards, J. G. LERC/Stearns, C. A. 12-Chemistry
LERC/Kohl, F. J.

NSG 3281 **University of Toledo** **3578**
An investigation of the high frequency performance of series
resonant inverters
Period *Obligations*
06/01/79-05/31/81 **FY80: TOTAL: \$24,962**
Prin Invest *NASA Tech Officer* *CASE Category*
Stuart, T. A. LERC/Gruber, R. P. 45-Elec Engr

NSG 5207 **University of Toledo** **3579**
Coordinated Copernicus and ground based observations of the
radio binaries
Period *Obligations*
09/01/77-03/31/79 **FY80: TOTAL: \$2,753**
Prin Invest *NASA Tech Officer* *CASE Category*
Bopp, B. W. GSFC/Kupperian, J. E., Jr. 11-Astronomy

NSG 5359 **University of Toledo** **3580**
Ultraviolet observations of various type supergiants
Period *Obligations*
06/01/79-05/31/81 **FY80: \$12,844** **TOTAL: \$17,544**
Prin Invest *NASA Tech Officer* *CASE Category*
Morrison, N. D. GSFC/Bogges, A. 11-Astronomy

NSG 5388 **University of Toledo** **3581**
Phase function studies in reflection nebulae with the international
ultraviolet experiment
Period *Obligations*
07/01/79-12/31/80 **FY80: \$6,372** **TOTAL: \$14,400**
Prin Invest *NASA Tech Officer* *CASE Category*
Witt, A. N. GSFC/Bogges, A. 11-Astronomy
Stecher, T. P.
Bohlin, R. C.

NASA'S UNIVERSITY PROGRAM OHIO (Continued)

NSG 7301 University of Toledo 3582
Physical study of comets
Period Obligations
01/01/77-09/30/81 FY80: \$41,438 TOTAL: \$61,366
Prin Invest NASA Tech Officer CASE Category
Delsemme, A. H. HD-SL/Murphy, R. 11-Astronomy
HD-SL/Brunk, W. E.

NSG 7431 University of Toledo 3583
Ultraviolet studies of reflection nebulae
Period Obligations
03/01/78-12/31/79 FY80: TOTAL: \$24,000
Prin Invest NASA Tech Officer CASE Category
Witt, A. N. HD-SC/Rcsendhal, J. D. 11-Astronomy
HD-SC/Roman, N. G.

NSG 7620 University of Toledo 3584
Phase function studies in reflection nebulae
Period Obligations
09/01/79-08/31/80 FY80: TOTAL: \$13,245
Prin Invest NASA Tech Officer CASE Category
Witt, A. N. HD-SC/Weiler, E. J. 11-Astronomy
HD-SC/Roman, N. G.

NAS 9-16041 Wright State University 3585
Life science flight experiment: Isometric exercise performance
under zero-gravity conditions
Period Obligations
01/17/80-05/31/81 FY80: \$28,129 TOTAL: \$28,129
Prin Invest NASA Tech Officer CASE Category
Petrofsky, J. S. JSC/French, B. O. 59-Life Sci, NEC

NCA 2-875002 Wright State University 3586
Motion sickness in the cat: Chemical aspects
Period Obligations
01/01/80-12/31/81 FY80: \$29,934 TOTAL: \$29,934
Prin Invest NASA Tech Officer CASE Category
Crampton, G. H. ARC/Daunton, N. G. 51-Biological Sci

NGT 36-024-790 Wright State University 3587
Aerospace medicine residency program
Period Obligations
07/01/78-06/30/81 FY80: \$208,993 TOTAL: \$521,562
Prin Invest NASA Tech Officer CASE Category
McCuen, R. H. HD-SB/Nicogossian, A. E. 59-Life Sci, NEC
Beljan, J

NSG 3240 Wright State University 3588
Atomic structure relationship in amorphous and crystalline boron
fibers
Period Obligations
12/01/78-08/01/79 FY80: TOTAL: \$11,306
Prin Invest NASA Tech Officer CASE Category
Bambakidis, G. LERC/Dicarlo, J. A. 13-Physics
LERC/Grimes, H. H.

NAG 1-88 Youngstown State University 3589
Control augmentation for lateral control wheel steering
Period Obligations
07/14/80-08/13/81 FY80: \$25,618 TOTAL: \$25,618
Prin Invest NASA Tech Officer CASE Category
Foulkes, R. H. LARC/Creedon, J. F. 41-Aero Engr

OKLAHOMA

NAG 1-10 Oklahoma State University 3590
Diagnostic experiments on supersonic jet noise
Period Obligations
12/01/79-11/30/80 FY80: \$49,990 TOTAL: \$49,990
Prin Invest NASA Tech Officer CASE Category
McLaughlin, D. K. LARC/Seiner, J. M. 13-Physics

NAG 3-74 Oklahoma State University 3591
Investigations of flow fields found in typical combustor ge-
ometries
Period Obligations
07/01/80-06/30/81 FY80: \$49,230 TOTAL: \$49,230
Prin Invest NASA Tech Officer CASE Category
Lilley, D. G. LERC/Marek, C. J. 41-Aero Engr
McLaughlin, D. K.

NAGW 26 Oklahoma State University 3592
Microbial ecology of extreme environments: Antarctic dry valley
yeasts and growth in substrate-limited habitats
Period Obligations
12/01/79-11/30/80 FY80: \$46,000 TOTAL: \$46,000
Prin Invest NASA Tech Officer CASE Category
Vishniac, H. S. HD-SB/Devincenzi, D. L. 51-Biological Sci

NAS 2-10467 Oklahoma State University 3593
Operation of a visitor, tour, and an aeronautical research
information and communication program
Period Obligations
12/01/79-11/30/81 FY80: \$142,702 TOTAL: \$142,702
Prin Invest NASA Tech Officer CASE Category
Wiggins, K. E. ARC/Miller, S. A. 41-Aero Engr
ARC/Fenrick, C. J.

NAS 6-2970 Oklahoma State University 3594
Mobile telemetry tracking systems
Period Obligations
02/01/79-05/31/81 FY80: \$97,000 TOTAL: \$304,290
Prin Invest NASA Tech Officer CASE Category
Buck, R. F. WFC/West, W. W. 49-Engr, NEC
WFC/Powell, W. R.

**NASA'S UNIVERSITY PROGRAM
OKLAHOMA (Continued)**

NAS 6-3103 **Oklahoma State University** **3595**
Mini-tracker ranging system
Period *Obligations*
05/12/80-11/11/81 **FY80: \$378,200 TOTAL: \$378,200**
Prin Invest *NASA Tech Officer* *CASE Category*
Fike, R. M. WFC/Boykin, F. M. 49-Engr, NEC
WFC/West, W. W.

NASW 3313 **Oklahoma State University** **3596**
Spacemobile operation and management of aerospace education services project
Period *Obligations*
10/01/79-09/30/80 **FY80: \$894,918 TOTAL: \$894,918**
Prin Invest *NASA Tech Officer* *CASE Category*
Wiggins, K. HD-LF/Nixon, W. D. 99-Multi-Discip

NSG 2396 **Oklahoma State University** **3597**
Study of boundary layer transition using transonic-cone preston-tube data
Period *Obligations*
07/01/79-12/31/80 **FY80: TOTAL: \$47,830**
Prin Invest *NASA Tech Officer* *CASE Category*
Moretti, P. M. ARC/Steinle, F. W. 41-Aero Engr
Reed, T. D.

NSG 4018 **Oklahoma State University** **3598**
Study of handling qualities of large control configured aircraft
Period *Obligations*
01/01/79-06/30/80 **FY80: TOTAL: \$24,680**
Prin Invest *NASA Tech Officer* *CASE Category*
Swain, R. L. DFRG/Gilyard, G. B. 41-Aero Engr

NSG 6018 **Oklahoma State University** **3599**
Investigation for improved precision in aerial application equipment
Period *Obligations*
10/01/77-12/31/80 **FY80: \$31,700 TOTAL: \$131,494**
Prin Invest *NASA Tech Officer* *CASE Category*
Roth, L. O. WFC/Carr, R. E. 49-Engr, NEC
Whitney, R. W.

NSG 7640 **Oklahoma State University** **3600**
Remote sensing applications to Oklahoma resources and environmental problems
Period *Obligations*
09/01/79-08/31/83 **FY80: \$120,000 TOTAL: \$285,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Walsh, S. HD-ET/Vitale, J. A. 31-Atmos Sci

NASW 3180 **Southeastern Oklahoma State Univ.** **3601**
Operation of a NASA industrial application center
Period *Obligations*
10/01/78-06/30/81 **FY80: \$422,578 TOTAL: \$582,850**
Prin Invest *NASA Tech Officer* *CASE Category*
Oliver, R. HD-ET/Bivins, R. G. 49-Engr, NEC

NAS 2-10408 **University of Oklahoma - Health Center** **3602**
Cosmos 1981 experiment: Carotid arterial flow and pressure measurement of primates
Period *Obligations*
10/01/79-08/31/82 **FY80: \$70,000 TOTAL: \$70,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Stone, H. L. APC/Heinrich, M. 51-Biological Sci

NAS 2-10526 **University of Oklahoma - Health Center** **3603**
Mechanism(s) underlying fluid volume shifts in zero-gravity
Period *Obligations*
01/17/80-12/31/80 **FY80: \$37,825 TOTAL: \$37,825**
Prin Invest *NASA Tech Officer* *CASE Category*
Stone, H. L. ARC/Ferandin, J. 51-Biological Sci
ARC/Lee, R. D.

NAS 2-10529 **University of Oklahoma - Health Center** **3604**
Cardiovascular deconditioning correlated with biochemical and histological indices of cardiac muscle function following zero-gravity exposure
Period *Obligations*
01/17/80-12/31/80 **FY80: \$2,436 TOTAL: \$2,436**
Prin Invest *NASA Tech Officer* *CASE Category*
Dowell, R. T. ARC/Rasmussen, D.N. 51-Biological Sci
ARC/Neville, E.

NAS 9-15994 **University of Oklahoma - Health Center** **3605**
Investigation of inhibition by camp of lymphocyte plasma membrane endogenous phosphorylation
Period *Obligations*
11/01/79-02/01/81 **FY80: \$20,000 TOTAL: \$20,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Nordquist, R. E. JSC/Lucid, S. W. 51-Biological Sci

NCC 2-24 **University of Oklahoma - Health Center** **3606**
Central and peripheral mechanisms underlying cardiovascular deconditioning in the unanesthetized primate
Period *Obligations*
11/01/79-10/31/80 **FY80: \$59,211 TOTAL: \$59,211**
Prin Invest *NASA Tech Officer* *CASE Category*
Stone, H. L. ARC/Sandler, H. 59-Life Sci, NEC

NAG 1-14 **University of Oklahoma - Norman** **3607**
A high temperature silicon-on-sapphire pressure sensor
Period *Obligations*
12/01/79-11/30/80 **FY80: \$56,126 TOTAL: \$56,126**
Prin Invest *NASA Tech Officer* *CASE Category*
Kahng, S. K. LARC/Hendricks, H. D. 45-Elec Engr
LARC/Ocheltree, S. L.

NAG 8-372 **University of Oklahoma - Norman** **3608**
Observations of the rapid variable AE Aquarius in the HEAO-B guest investigator program: Observations of selected superclusters
Period *Obligations*
09/15/80-09/14/81 **FY80: \$5,892 TOTAL: \$5,892**
Prin Invest *NASA Tech Officer* *CASE Category*
Chincarini, G. MSFC/Stone, J. F. 11-Astronomy

NASA'S UNIVERSITY PROGRAM OKLAHOMA (Continued)

NAS 5-25375 University of Oklahoma - Norman 3609
Satellite data assimilation in numerical forecast models
Period Obligations
12/05/78-12/04/80 FY80: \$53,835 TOTAL: \$109,670
Prin. Invest. NASA Tech. Officer CASE Category
Sasaki, Y. K. GSFC/Greaves, J. R. 31-Atmos Sci

NAS 8-31377 University of Oklahoma - Norman 3610
Integrating upper and lower atmospheric wind profiles and statistics
Period Obligations
03/17/75-04/20/79 FY80: TOTAL: \$82,929
Prin. Invest. NASA Tech. Officer CASE Category
McCarthy, J. MSFC/Camp, D. W. 31-Atmos Sci
Blick, E. F. MSFC/Fichtl, G. H.

NAS 8-33330 University of Oklahoma - Norman 3611
Observations of the rapid variable AE Aquarius in the HEAO-B guest investigator program: Observations of selected superclusters
Period Obligations
02/05/79-02/04/80 FY80: TOTAL: \$3,886
Prin. Invest. NASA Tech. Officer CASE Category
Chincarini, G. L. MSFC/Jones, J. B., Jr. 11-Astronomy
Herczeg, T.

NAS13-122 University of Oklahoma - Norman 3612
To provide for a second year of effort in establishing LANDSAT workshop
Period Obligations
06/01/79-05/31/80 FY80: TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
Harrington, J. A. NSTL/Atwell, B. H. 32-Geological Sci

NAS13-156 University of Oklahoma - Norman 3613
Developing seminars and short courses in state of the art remote sensing techniques
Period Obligations
07/28/80-07/27/81 FY80: \$12,000 TOTAL: \$12,000
Prin. Invest. NASA Tech. Officer CASE Category
Available, U. N. NSTL/Atwell, B. H. 32-Geological Sci

NCA 2-580001 University of Oklahoma - Norman 3614
Basic studies of a rectangular jet impingement on the surface
Period Obligations
01/01/80-12/31/80 FY80: \$21,817 TOTAL: \$21,817
Prin. Invest. NASA Tech. Officer CASE Category
Krothapalli, A. ARC/Koenig, D. G. 41-Aero Engr

NCA 2-580901 University of Oklahoma - Norman 3615
Cardiac function and exercise training
Period Obligations
07/01/79-06/30/81 FY80: \$23,030 TOTAL: \$27,030
Prin. Invest. NASA Tech. Officer CASE Category
Stone, H. L. ARC/Sandler, H. 51-Biological Sci

NGT 37-003-760 University of Oklahoma - Norman 3616
Training of undergraduate students in sciences and engineering
Period Obligations
06/01/76-08/31/80 FY80: TOTAL: \$31,500
Prin. Invest. NASA Tech. Officer CASE Category
Thomas, G. HD-LU/Pohly, J. G. 49-Engr, NEC
HD-U/Jenkins, H. G.

NSG 5257 University of Oklahoma - Norman 3617
Research of the ultraviolet spectrum of a massive triple system OAO
Period Obligations
03/15/78-03/14/79 FY80: TOTAL: \$572
Prin. Invest. NASA Tech. Officer CASE Category
Herczeg, T. GSFC/Kupperian, J. E., Jr. 11-Astronomy

OREGON

NAG 1-35 Oregon Graduate Center 3618
Automated measurements of calibrated concentrations (CO, CH4, and CO2) at Samoa and Tasmania
Period Obligations
01/25/80-01/24/81 FY80: \$31,214 TOTAL: \$31,214
Prin. Invest. NASA Tech. Officer CASE Category
Rasmussen, R. A. LARC/Reichle, H. G. 31-Atmos Sci

NAG 2-9 Oregon Graduate Center 3619
Measurement of temperature and density fluctuations in turbulence using an ultraviolet laser
Period Obligations
01/01/80-12/31/80 FY80: \$28,516 TOTAL: \$28,516
Prin. Invest. NASA Tech. Officer CASE Category
Massey, G. A. ARC/McKenzie, R. L. 13-Physics

NSG 2387 Oregon Graduate Center 3620
Evaluation of turbulence induced noise in coherent anti-Stokes/Raman scattering
Period Obligations
06/01/79-03/31/81 FY80: \$23,996 TOTAL: \$38,966
Prin. Invest. NASA Tech. Officer CASE Category
Elliott, R. A. ARC/McKenzie, R. L. 13-Physics

NSG 7457 Oregon Graduate Center 3621
Spatial and temporal variations in atmospheric carbon concentration
Period Obligations
05/01/78-04/30/81 FY80: \$75,048 TOTAL: \$224,148
Prin. Invest. NASA Tech. Officer CASE Category
Rasmussen, R. A. HD-EB/Toth, R. A. 31-Atmos Sci
HD-EB/Tilford, S. G.

NASA'S UNIVERSITY PROGRAM
OREGON (Continued)

NAG 3-87 **Oregon State University** **3622**
Wind turbine structural design and analysis
Period *Obligations*
07/15/80-07/14/81 **FY80: \$42,732** **TOTAL: \$42,732**
Prin Invest *NASA Tech Officer* *CASE Category*
Thresher, R. W. LERC/Spera, D. A. 46-Mech Engr
LERC/Finnegan, P. M.

NAG 5-51 **Oregon State University** **3623**
Investigation of small-scale terrain effects within climate models
Period *Obligations*
05/15/80-05/14/81 **FY80: \$63,132** **TOTAL: \$63,132**
Prin Invest *NASA Tech Officer* *CASE Category*
Deardorff, J. W. GSFC/Shukla, J. 31-Atmos Sci

NAG 9-2 **Oregon State University** **3624**
Neotectonics of Pakistan
Period *Obligations*
02/01/80-01/31/81 **FY80: \$60,000** **TOTAL: \$60,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Lawrence, R. D. JSC/Phinney, W. C. 32-Geological Sci

NAS 5-23738 **Oregon State University** **3625**
Ocean color ground truth support
Period *Obligations*
10/21/76-12/31/79 **FY80: \$101,558** **TOTAL: \$101,558**
Prin Invest *NASA Tech Officer* *CASE Category*
Zaneveld, R. V. GSFC/Mueller, J. 39-Env Sci, NEC
Pak, H.

NAS 9-14860 **Oregon State University** **3626**
Assessment of the impact of increased solar ultraviolet radiation upon marine ecosystems
Period *Obligations*
10/08/75-12/07/80 **FY80: \$40,000** **TOTAL: \$300,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Worrest, R. C. JSC/Nachtwey, D. S. 54-Env Biology

NCA 2-586001 **Oregon State University** **3627**
Improving convergence to the steady state
Period *Obligations*
06/01/80-05/31/81 **FY80: \$12,635** **TOTAL: \$12,635**
Prin Invest *NASA Tech Officer* *CASE Category*
Jespersen, D. C. ARC/Lomax, H. 21-Mathematics

NGL 38-002-039 **Oregon State University** **3628**
Lunar sample analysis
Period *Obligations*
01/19/71-01/31/81 **FY80: \$80,214** **TOTAL: \$617,081**
Prin Invest *NASA Tech Officer* *CASE Category*
Schmitt, R. A. JSC/Harris, J. W. 13-Physics

NGL 38-002-053 **Oregon State University** **3629**
Development and operation of an environmental remote sensing applications laboratory
Period *Obligations*
03/16/72-03/31/82 **FY80: \$150,000** **TOTAL: \$1,175,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Schrumpf, B. J. HD-ET/Vitale, J. A. 39-F EC

NSG 5308 **Oregon State University** **3630**
Analyses of the surface heat balance over the world ocean
Period *Obligations*
12/01/78-04/30/81 **FY80: \$39,313** **TOTAL: \$95,747**
Prin Invest *NASA Tech Officer* *CASE Category*
Esbensen, S. GSFC/Halem, M. 31-Atmos Sci

NSG 5343 **Oregon State University** **3631**
Techniques for applications of satellite data to the quantitative forecasting of precipitation
Period *Obligations*
05/01/79-12/31/80 **FY80: \$64,660** **TOTAL: \$64,660**
Prin Invest *NASA Tech Officer* *CASE Category*
Decker, F. W. GSFC/Adler, R. F. 31-Atmos Sci

NSG 5353 **Oregon State University** **3632**
Numerical simulation of large scale ocean atmosphere coupling and the ocean's role in climate
Period *Obligations*
05/01/79-05/14/81 **FY80: \$196,200** **TOTAL: \$390,259**
Prin Invest *NASA Tech Officer* *CASE Category*
Gates, W. L. GSFC/Halem, M. 31-Atmos Sci

NSG 7178 **Oregon State University** **3633**
Examination of the suggested modes of origin of channels found on the Moon and Mars
Period *Obligations*
01/01/76-01/31/81 **FY80: \$27,083** **TOTAL: \$112,961**
Prin Invest *NASA Tech Officer* *CASE Category*
Komar, P. D. HD-SL/Boyce, J. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NAG 2-7 **University of Oregon - Eugene** **3634**
Hydrodynamics and turbulence in quantum fluids
Period *Obligations*
11/01/79-10/31/80 **FY80: \$62,000** **TOTAL: \$62,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Donnelly, R. ARC/Brooks, W. 13-Physics
Lucas, D. G. ARC/Chapman, G.
Roberts, P.

NAGW 7 **University of Oregon - Eugene** **3635**
Optical monitoring of Cygnus X-1, X Persei, and other X-ray sources
Period *Obligations*
10/01/79-02/28/81 **FY80: \$20,054** **TOTAL: \$20,054**
Prin Invest *NASA Tech Officer* *CASE Category*
Kemp, J. C. HD-SC/Kaluzienski, L. J. 11-Astronomy
HD-SC/Holt, S. S.

NASA'S UNIVERSITY PROGRAM OREGON (Continued)

NGL 38-003-022 University of Oregon - Eugene 3636
Lunar sample analysis
Period Obligations
02/09/71-01/31/81 FY80: \$76,018 TOTAL: \$701,892
Prin Invest NASA Tech Officer CASE Category
Weill, D. F. JSC/Harris, J. W. 13-Physics

NGR 38-003-020 University of Oregon - Eugene 3637
Inspection of petrologically significant physical and chemical properties of the silicate melts
Period Obligations
06/01/70-02/28/81 FY80: \$655,671 TOTAL: \$655,671
Prin Invest NASA Tech Officer CASE Category
Weill, D. F. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. E.

NSG 7360 University of Oregon - Eugene 3638
Far-infrared measurements of trace constituents
Period Obligations
06/01/77-09/30/80 FY80: \$49,988 TOTAL: \$138,628
Prin Invest NASA Tech Officer CASE Category
Nolt, I. G. HD-ST/Kakar, R. K. 31-Atmos Sci
Radosnitz, J. V. HD-ST/Tilford, S. G.
Donnelly, R. J.

NSG 7531 University of Oregon - Eugene 3639
Infrared and visible polarimetry of planetary bodies
Period Obligations
01/01/79-12/31/79 FY80: \$12,333 TOTAL: \$12,333
Prin Invest NASA Tech Officer CASE Category
Kemp, J. C. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Murphy, R. E.

NSG 7639 University of Oregon - Eugene 3640
Spectrum of the continuous gravitational radiation background
Period Obligations
09/30/79-09/30/81 FY80: \$12,201 TOTAL: \$23,246
Prin Invest NASA Tech Officer CASE Category
Zimmerman, R. L. HD-SC/Weiler, E. J. 11-Astronomy
HD-SC/Boggess, N. W.

NAS 8-33575 University of Oregon-Health Sci. Ctr. 3641
Counter current distribution of biologic cells
Period Obligations
11/16/78-11/15/82 FY80: \$102,000 TOTAL: \$102,000
Prin Invest NASA Tech Officer CASE Category
Brooks, D. E. MSFC/Bannister, T. C.
MSFC/Snyder, R. 47-Materials Engr

PENNSYLVANIA

NSG 3136 Bucknell University 3642
Development of a predictive model for thermal and thermo-oxidative stability of PMR polyimide graphite fiber composites
Period Obligations
02/01/77-02/01/81 FY80: \$44,999 TOTAL: \$44,999
Prin Invest NASA Tech Officer CASE Category
Snyder, W. J. LFPC/Serafini, T. T. 43-Chem Engr

NAG 3-5 Carnegie - Mellon University 3643
Electro-optical system controller and processor
Period Obligations
11/01/79-10/31/82 FY80: \$159,907 TOTAL: \$159,907
Prin Invest NASA Tech Officer CASE Category
Casasent, D. LERC/Baumbick, R. J. 45-Elec Engr
LERC/Sellers, J. F.

NAG 3-21 Carnegie - Mellon University 3644
Formulate a multi-dimensional, unsteady, turbulent, compressible, reacting flow code for Otto cycle codes and engines
Period Obligations
12/15/79-12/14/80 FY80: \$99,981 TOTAL: \$99,981
Prin Invest NASA Tech Officer CASE Category
Sirignano, W. A. LERC/Cassidy, J. F. 46-Mech Engr
Ramos, J. I.
Artman, J. O.

NAS 1-16125 Carnegie - Mellon University 3645
Study to evaluate the use of an optical pattern recognition system
Period Obligations
02/28/80-05/12/81 FY80: \$39,820 TOTAL: \$39,820
Prin Invest NASA Tech Officer CASE Category
Casasent, D. LARC/Wilson, R. G. 45-Elec Engr
LARC/Howell, W. E.

NGT 39-087-790 Carnegie - Mellon University 3646
Pre-cooperative engineering education program
Period Obligations
08/01/79-07/31/80 FY80: \$2,239 TOTAL: \$2,239
Prin Invest NASA Tech Officer CASE Category
Cathie, W. HD-LU/Pohly, J. G. 49-Engr, NEC
LERC/Allen, R. P.

NSG 3172 Carnegie - Mellon University 3647
Evaluation of failure mechanics in composites
Period Obligations
12/01/77-12/02/80 FY80: \$35,000 TOTAL: \$95,000
Prin Invest NASA Tech Officer CASE Category
Swedlow, J. L. LERC/Srawley, J. E. 46-Mech Engr
Baumann, K. J. LERC/Brown, W. F., Jr.

**NASA'S UNIVERSITY PROGRAM
PENNSYLVANIA (Continued)**

NSG 3202 Carnegie - Mellon University **3648**
A preliminary thermal analysis of reciprocating seals for the stirling engine
Period *Obligations*
07/01/78-11/30/80 **FY80: \$26,520 TOTAL: \$62,867**
Prin Invest *NASA Tech Officer* *CASE Category*
Hughes, W. F. LERC/Cunningham, R. E. 46-Mech Engr
LERC/Ludwig, L. P.

NSG 7585 Carnegie - Mellon University **3649**
Iron-60 as a heat source and chronometer in early solar system
Period *Obligations*
05/01/79-04/30/81 **FY80: \$62,962 TOTAL: \$122,116**
Prin Invest *NASA Tech Officer* *CASE Category*
Kohman, T. P. HD-SL/French, B. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NAG 2-8 Drexel University **3650**
Application of variable structure system theory to aircraft flight control
Period *Obligations*
01/01/80-10/31/80 **FY80: \$34,200 TOTAL: \$34,200**
Prin Invest *NASA Tech Officer* *CASE Category*
Calise, A. J. ARC/Meyer, G. 49-Engr, NEC

NAG 2-10 Drexel University **3651**
Experiments in the formation of aerosols by photo-oxidation of sulfur dioxide
Period *Obligations*
01/01/80-12/31/80 **FY80: \$33,900 TOTAL: \$33,900**
Prin Invest *NASA Tech Officer* *CASE Category*
Friend, J. P. ARC/Farlow, N. H. 31-Atmos Sci
Hanson, R. S. ARC/Pollack, J. B.

NAG 3-1 Drexel University **3652**
Pollutant formation in monodisperse fuel spray combustion
Period *Obligations*
11/01/79-10/30/80 **FY80: \$50,000 TOTAL: \$50,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Cernansky, N. P. LERC/Lyons, V. J. 41-Aero Engr

NAG 3-14 Drexel University **3653**
Microstructure and fatigue behavior of Rheocast IN-100
Period *Obligations*
02/01/80-01/31/81 **FY80: \$41,800 TOTAL: \$41,800**
Prin Invest *NASA Tech Officer* *CASE Category*
Apelian, D. LERC/Glasgow, T. K. 47-Materials Engr
Lawley, A.

NAGW 84 Drexel University **3654**
Rave research on atmospheric volcanic emissions
Period *Obligations*
05/01/80-04/30/81 **FY80: \$154,500 TOTAL: \$154,500**
Prin Invest *NASA Tech Officer* *CASE Category*
Friend, J. P. LARC/McCormick, M. P. 31-Atmos Sci
HD-EB/Schiffer, R. A.

NAS 1-14393 Drexel University **3655**
Science support for the limb infrared monitor of the stratosphere experiment
Period *Obligations*
04/01/76-10/31/80 **FY80: TOTAL: \$106,556**
Prin Invest *NASA Tech Officer* *CASE Category*
House, F. B. LARC/Russell, J. M., III 31-Atmos Sci
LARC/James, R. L., Jr.

NAS 1-16428 Drexel University **3656**
Scientific investigations for the Earth Radiation Budget Experiment (ERBE)
Period *Obligations*
09/17/80-09/16/85 **FY80: \$38,000 TOTAL: \$38,000**
Prin Invest *NASA Tech Officer* *CASE Category*
House, F. B. LARC/Hall, J. B. 31-Atmos Sci
LARC/Barkstrom, B. R.

NAS 5-22946 Drexel University **3657**
Science support for the Earth radiation budget experiment on Nimbus G
Period *Obligations*
01/12/76-09/30/81 **FY80: \$39,900 TOTAL: \$162,908**
Prin Invest *NASA Tech Officer* *CASE Category*
House, F. B. GSFC/Nelson, E. D. 13-Physics

NAS 8-33372 Drexel University **3658**
A critical experiment to support possible space flight
Period *Obligations*
02/12/79-06/11/80 **FY80: TOTAL: \$29,057**
Prin Invest *NASA Tech Officer* *CASE Category*
Lord, A. E. MSFC/Schaefer, D. A. 31-Atmos Sci
MSFC/Williams, J. R.

NAS 9-15915 Drexel University **3659**
Bone growth and alteration via endosseous implants
Period *Obligations*
07/01/79-12/31/80 **FY80: TOTAL: \$50,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Kamel, I. JSC/Altchuler, S. I. 56-Medical Sciences

NCC 1-33 Drexel University **3660**
Infrared heterodyne observation of the stratosphere from balloon based platform
Period *Obligations*
01/09/80-01/08/81 **FY80: \$40,000 TOTAL: \$40,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Abbas, M. M. LARC/Allario, F. 31-Atmos Sci
House, F. B. LARC/Alvarez, J. M.

NSG 1496 Drexel University **3661**
Research on singular perturbation techniques for on-line optimal control
Period *Obligations*
02/01/78-12/31/80 **FY80: \$40,000 TOTAL: \$89,418**
Prin Invest *NASA Tech Officer* *CASE Category*
Calise, A. J. LARC/Price, D. B. 41-Aero Engr

NASA'S UNIVERSITY PROGRAM
PENNSYLVANIA (Continued)

NSG 1545 **Drexel University** **3662**
 Development of a climate model using a time dependent energy balance formulation
Period *Obligations*
 07/01/78-10/31/80 **FY80:** **TOTAL: \$44,600**
Prin Invest *NASA Tech Officer* *CASE Category*
 House, F. B. LARC/Smith, G. L. 31-Atmos Sci
 Jafolla, J. C.

NSG 1606 **Drexel University** **3663**
 Deformation characteristics and failure modes of notched graphite polyimide composites at room and elevated temperatures
Period *Obligations*
 07/01/79-10/31/80 **FY80: \$25,900** **TOTAL: \$75,300**
Prin Invest *NASA Tech Officer* *CASE Category*
 Awerbuch, J. LARC/Poe, C. C., Jr. 47-Materials Engr
 Kamel, I. LARC/Kennedy, J. M.

NSG 2357 **Drexel University** **3664**
 Feasibility studies for light scattering experiments in space to determine the velocity relaxation of small particles in a fluid
Period *Obligations*
 01/01/79-01/31/81 **FY80: \$25,000** **TOTAL: \$48,000**
Prin Invest *NASA Tech Officer* *CASE Category*
 Acquista, C. ARC/Brooks, W. F. 13-Physics
 Narducci, L.

NSG 3128 **Drexel University** **3665**
 Interface characterization of metal matrix composites
Period *Obligations*
 10/01/76-10/31/80 **FY80: \$35,000** **TOTAL: \$140,000**
Prin Invest *NASA Tech Officer* *CASE Category*
 Kozak, M. J. LERC/Gimes, H. H. 47-Materials Engr
 Lawley, A.

NSG 5162 **Drexel University** **3666**
 Utilization of satellite data and regional scale numerical models in short range weather forecasting
Period *Obligations*
 03/01/77-06/30/80 **FY80:** **TOTAL: \$244,900**
Prin Invest *NASA Tech Officer* *CASE Category*
 Kreitzberg, C. GSFC/Ucellini, L. W. 31-Atmos Sci

NSG 6007 **Drexel University** **3667**
 Electrochemical concentration cell ozonesonde performance tests
Period *Obligations*
 05/01/76-09/30/80 **FY80: \$7,404** **TOTAL: \$110,654**
Prin Invest *NASA Tech Officer* *CASE Category*
 Bandy, A. R. WFC/Holland, A. C. 31-Atmos Sci
 WFC/Torres, A. L.

NSG 6019 **Drexel University** **3668**
 Theoretical investigations into the scattering of light by real aerosols
Period *Obligations*
 11/01/77-04/30/80 **FY80:** **TOTAL: \$17,750**
Prin Invest *NASA Tech Officer* *CASE Category*
 Acquista, C. WFC/Holland, A. C. 13-Physics

NSG 6035 **Drexel University** **3669**
 A study of optimal electrode preparation for the electrochemical concentration cell ozonesonde
Period *Obligations*
 07/01/79-09/30/80 **FY80: \$67,000** **TOTAL: \$72,600**
Prin Invest *NASA Tech Officer* *CASE Category*
 Thornton, D. C. WFC/Torres, A. L. 12-Chemistry

NSG 7491 **Drexel University** **3670**
 Theory for nonlinear reaction-diffusion phenomena with application to free radical recombination IV
Period *Obligations*
 10/01/78-09/30/80 **FY80: \$35,000** **TOTAL: \$70,000**
Prin Invest *NASA Tech Officer* *CASE Category*
 Rosen, G. H. HD-RT/Whiting, E. E. 13-Physics

NSG 7494 **Drexel University** **3671**
 Vectoroculography: Mathematical and vector improvement for the electroculogram
Period *Obligations*
 11/01/78-04/30/80 **FY80:** **TOTAL: \$40,700**
Prin Invest *NASA Tech Officer* *CASE Category*
 Dubin, S. HD-SB/Larson, C. 59-Life Sci, NEC

NAG 1-45 **Lafayette College** **3672**
 Ultrasonic ranging for the oculometer
Period *Obligations*
 03/01/80-02/28/81 **FY80: \$13,000** **TOTAL: \$13,000**
Prin Invest *NASA Tech Officer* *CASE Category*
 Guy, W. J. LARC/Gainer, P. A. 49-Engr, NEC

NAG 8-355 **Lehigh University** **3673**
 Interacting close binary systems
Period *Obligations*
 06/27/80-06/26/81 **FY80: \$7,300** **TOTAL: \$7,300**
Prin Invest *NASA Tech Officer* *CASE Category*
 McCluskey, G. E. MSFC/Swearingen, J. C. 11-Astronomy
 Stengle, G. A.

NAS 8-32951 **Lehigh University** **3674**
 Experiment for materials processing in space production of large particle size monodisperse latexes
Period *Obligations*
 02/22/78-02/22/83 **FY80: \$96,000** **TOTAL: \$361,315**
Prin Invest *NASA Tech Officer* *CASE Category*
 VanDerhoff, J. W. MSFC/Williams, J. R. 13-Physics
 MSFC/Kornfeld, D. M.

NAS 9-16071 **Lehigh University** **3675**
 Apply special coatings to electrophoresis columns and measure anti-electro-osmosis values of coated columns and predict test results
Period *Obligations*
 02/11/80-02/10/81 **FY80: \$8,600** **TOTAL: \$8,600**
Prin Invest *NASA Tech Officer* *CASE Category*
 Vanderhoff, J. W. JSC/Reynolds, M. A. 47-Materials Engr
 JSC/Morrison, D. R.

NASA'S UNIVERSITY PROGRAM PENNSYLVANIA (Continued)

NCA 2-380901 **Lehigh University** **3676**
The long wavelength infrared absorption by SO₂ and its
importance in forming Venus' greenhouse
Period *Obligations*
05/15/79-10/31/80 **FY80: \$5,604** **TOTAL: \$14,484**
Prin Invest *NASA Tech Officer* *CASE Category*
Lovejoy, R. W. ARC/Boese, R. W. 12-Chemistry

NGR 39-007-011 **Lehigh University** **3677**
Viscoelastic analysis of bonded joints and crack problems in
orthotropic plates and shells
Period *Obligations*
11/30/64-10/31/81 **FY80: \$52,920** **TOTAL: \$495,120**
Prin Invest *NASA Tech Officer* *CASE Category*
Erdogan, F. LARC/Fichter, W. B. 21-Mathematics
LARC/Everett, R. A.

NGR 39-007-043 **Lehigh University** **3678**
Shock and thermal history of unusual iron meteorites
Period *Obligations*
05/24/71-03/31/81 **FY80: \$77,890** **TOTAL: \$371,476**
Prin Invest *NASA Tech Officer* *CASE Category*
Goldstein, J. I. HD-SL/French, B. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NGR 39-007-056 **Lehigh University** **3679**
Lunar sample analysis
Period *Obligations*
01/12/71-01/31/81 **FY80: \$25,000** **TOTAL: \$499,096**
Prin Invest *NASA Tech Officer* *CASE Category*
Goldstein, J. I. JSC/Harris, J. W. 12-Chemistry

NGR 39-007-061 **Lehigh University** **3680**
Investigation of generation of X-rays in close binary stars
Period *Obligations*
03/10/73-06/30/80 **FY80:** **TOTAL: \$45,651**
Prin Invest *NASA Tech Officer* *CASE Category*
McCluskey, G. E. JSC/Potter, A. 11-Astronomy

NSG 3162 **Lehigh University** **3681**
Blade flutter in compressors and fans numerical simulation of
aerodynamic loading
Period *Obligations*
01/01/78-08/31/82 **FY80:** **TOTAL: \$55,630**
Prin Invest *NASA Tech Officer* *CASE Category*
Rockwell, D. O. LERC/Batterton, P. G. 41-Aero Engr
Johnson, S. H. LERC/Kurkov, A. P.

NSG 3179 **Lehigh University** **3682**
Time-dependent response of unidirectional and laminate composites
under static and impact loading
Period *Obligations*
02/13/78-02/12/81 **FY80: \$55,000** **TOTAL: \$157,315**
Prin Invest *NASA Tech Officer* *CASE Category*
Sih, G. C. LERC/Chamis, C. C. 49-Engr, NEC
LERC/Smith, G. T.

NSG 5386 **Lehigh University** **3683**
Mass flow and evolution in close binaries including simultaneous
observations of X-ray binaries
Period *Obligations*
07/01/79-06/30/81 **FY80: \$14,000** **TOTAL: \$22,000**
Prin Invest *NASA Tech Officer* *CASE Category*
McCluskey, G. E. GSFC/Bogges, A. 11-Astronomy
Kondo, Y.

NAS 5-23800 **Lincoln University - Pa.** **3684**
Medical information management system
Period *Obligations*
11/22/76-01/03/81 **FY80:** **TOTAL: \$128,336**
Prin Invest *NASA Tech Officer* *CASE Category*
Frankowsky, J. W. GSFC/Alterescu, S. 56-Medical Sciences
KSC/Buchanan, P.

NCA 5-98 **Lincoln University - Pa.** **3685**
Introduction aerospace engineering
Period *Obligations*
07/01/80-07/31/81 **FY80: \$30,300** **TOTAL: \$30,300**
Prin Invest *NASA Tech Officer* *CASE Category*
Williams, W. GSFC/Mundy, J. R. 49-Engr, NEC
GSFC/Chapman, J. W.

NAS 2-10521 **Pennsylvania State Univ - Hershey Med.** **3686**
Angiotensin related changes in body hydration
Period *Obligations*
01/17/80-04/30/81 **FY80: \$15,006** **TOTAL: \$15,006**
Prin Invest *NASA Tech Officer* *CASE Category*
Severs, W. B. ARC/Ferandin, J. 51-Biological Sci
ARC/Polson, P.

NSG 2122 **Pennsylvania State Univ - Hershey Med.** **3687**
Subformal organ and salt/water balance
Period *Obligations*
01/01/76-12/31/80 **FY80: \$30,827** **TOTAL: \$125,979**
Prin Invest *NASA Tech Officer* *CASE Category*
Severs, W. B. ARC/Keil, L. C. 56-Medical Sciences

NAG 1-4 **Pennsylvania State University** **3688**
Free-field propagation of high intensity noise
Period *Obligations*
12/01/79-02/28/81 **FY80: \$40,000** **TOTAL: \$40,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Daniel, O. H. LARC/Norum, T. D. 41-Aero Engr
LARC/Seiner, J. M.

NAG 1-73 **Pennsylvania State University** **3689**
The spinning of light aircraft
Period *Obligations*
06/01/80-05/31/81 **FY80: \$44,956** **TOTAL: \$44,956**
Prin Invest *NASA Tech Officer* *CASE Category*
McCormick, B. W. LARC/Chambers, J. R. 41-Aero Engr
LARC/Johnson, J. L.

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NAG 3-35 **Pennsylvania State University** **3690**
Oxidation of liquid lubricants and its relationship to chemical changes during elastohydrodynamic and boundary lubrication
Period *Obligations*
04/01/80-03/31/81 **FY80: \$47,566** **TOTAL: \$47,566**
Prin Invest *NASA Tech Officer* *CASE Category*
Klaus, E. E. LERC/Loomis, W. R. 43-Chem Engr
Duda, J. L. LERC/Slaney, H. E.
Nagarajan, R.

NAG 3-68 **Pennsylvania State University** **3691**
Ceramic materials for high-temperature pressure transducers
Period *Obligations*
05/20/80-02/19/81 **FY80: \$30,000** **TOTAL: \$30,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Bradt, R. C. LERC/Barranger, J. P. 47-Materials Engr

NAG 3-91 **Pennsylvania State University** **3692**
The utilization of alternate fuels in diesel engines
Period *Obligations*
09/01/80-08/31/81 **FY80: \$77,435** **TOTAL: \$77,435**
Prin Invest *NASA Tech Officer* *CASE Category*
Lestz, S. S. LERC/Skorobatchkyi, M. 46-Mech Engr
LERC/Migra, R. P.

NAG 5-49 **Pennsylvania State University** **3693**
Combined use of remote sensing and seismic observations to infer recent crust deformation, active faulting and stress fields
Period *Obligations*
05/01/80-04/31/81 **FY80: \$40,000** **TOTAL: \$40,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Alexander, S. S. GSFC/Harper, E. L. 32-Geological Sci
Guld, D. P. GSFC/Allenby, R. J.

NAG 5-60 **Pennsylvania State University** **3694**
Ultraviolet study of peculiar white dwarfs
Period *Obligations*
06/01/80-05/31/81 **FY80: \$4,866** **TOTAL: \$4,866**
Prin Invest *NASA Tech Officer* *CASE Category*
Wegner, G. A. GSFC/Bogges, A. 11-Astronomy

NAG 5-77 **Pennsylvania State University** **3695**
Synthesis of regional crust and upper mantle structure from seismic and gravity data
Period *Obligations*
06/15/80-06/14/81 **FY80: \$40,000** **TOTAL: \$40,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Alexander, S. S. GSFC/Harper, E. L. 32-Geological Sci
Lavin, P. M. GSFC/Allenby, R. J.

NAG 6-7 **Pennsylvania State University** **3696**
Investigate the influence of auroral energetic and electrodynamic coupling on middle atmosphere parameters
Period *Obligations*
09/01/80-08/31/81 **FY80: \$55,000** **TOTAL: \$55,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Mitchell, J. D. WFC/Early, L. J. 19-Phys Sci, NEC
Maynard, N. C. WFC/Pless, R. H.
Goldberg, R.

NAS 5-23859 **Pennsylvania State University** **3697**
U-2 and LANDSAT data processing and intralab analysis support
Period *Obligations*
01/21/77-11/15/79 **FY80: \$30,240** **TOTAL: \$189,717**
Prin Invest *NASA Tech Officer* *CASE Category*
McMurtry, G. J. GSFC/Alford, W. 39-Env Sci, NEC

NAS 5-24264 **Pennsylvania State University** **3698**
Application of satellite data to the study of urban heating patterns
Period *Obligations*
09/23/77-11/30/80 **FY80: \$17,416** **TOTAL: \$71,871**
Prin Invest *NASA Tech Officer* *CASE Category*
Carlson, T. N. GSFC/Oseroff, H. 31-Atmos Sci

NAS 5-25667 **Pennsylvania State University** **3699**
Development and evaluation of remote sensing techniques for soil surveys
Period *Obligations*
05/21/79-12/05/80 **FY80:** **TOTAL: \$9,993**
Prin Invest *NASA Tech Officer* *CASE Category*
Petersen, G. W. GSFC/Irons, J. 39-Env Sci, NEC

NAS 5-25702 **Pennsylvania State University** **3700**
Office for remote sensing of Earth resources analytical support
Period *Obligations*
06/14/79-09/30/80 **FY80: \$41,847** **TOTAL: \$85,276**
Prin Invest *NASA Tech Officer* *CASE Category*
McMurtry, G. J. GSFC/Labovitz, M. 31-Atmos Sci

NAS 5-25996 **Pennsylvania State University** **3761**
Chemical analysis of vegetation samples
Period *Obligations*
03/17/80-05/19/80 **FY80: \$4,819** **TOTAL: \$4,819**
Prin Invest *NASA Tech Officer* *CASE Category*
Smith, C. B. GSFC/Labovitz, M. 39-Env Sci, NEC

NAS 5-26166 **Pennsylvania State University** **3702**
Development of computer software to analyze entire LANDSAT scenes and to summarize classification results of variable size polygons
Period *Obligations*
06/23/80-01/23/81 **FY80: \$39,925** **TOTAL: \$39,925**
Prin Invest *NASA Tech Officer* *CASE Category*
Turner, B. GSFC/Dottavio, C. L. 22-Computer Science

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NAS 5-26215 **Pennsylvania State University** **3703**
Chemical analysis of vegetation samples
Period *Obligations*
07/11/80-07/11/81 **FY80: \$26,000** **TOTAL: \$26,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Smith, C. B. GSFC/Labovitz, M. 32-Geological Sci
Baker, D. E. GSFC/Masuoka, E. J.

NAS 5-26323 **Pennsylvania State University** **3704**
Remote sensing data analysis support
Period *Obligations*
09/16/80-09/15/82 **FY80: \$40,737** **TOTAL: \$40,737**
Prin Invest *NASA Tech Officer* *CASE Category*
Turner, B. GSFC/Irons, J. 99-Multi-Discip

NAS 6-2726 **Pennsylvania State University** **3705**
Stratosphere and mesosphere structure and circulation studies
Period *Obligations*
03/04/76-01/31/80 **FY80: \$34,818** **TOTAL: \$122,233**
Prin Invest *NASA Tech Officer* *CASE Category*
Olivero, J. WFC/Duke, J. R. 31-Atmos Sci
WFC/Schmidlin, F. J.

NAS 8-33794 **Pennsylvania State University** **3706**
Utilization of satellite data and dynamics in understanding global weather phenomenon
Period *Obligations*
08/15/80-08/14/81 **FY80: \$80,000** **TOTAL: \$80,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Clark, J. H. MSFC/Kaufman, J. W. 31-Atmos Sci
Dutton, J. A. MSFC/Fichtl, G. H.

NAS 8-33797 **Pennsylvania State University** **3707**
Application of satellite data to study effect of latent heat release on cyclone
Period *Obligations*
07/01/80-06/30/81 **FY80: \$63,899** **TOTAL: \$63,899**
Prin Invest *NASA Tech Officer* *CASE Category*
Clark, J. H. MSFC/Fichtl, G. H. 31-Atmos Sci
MSFC/Kaufman, J. W.

NAS 9-15566 **Pennsylvania State University** **3708**
Purification and cultivation of human pituitary growth hormone secreting cells
Period *Obligations*
05/01/78-06/01/81 **FY80: \$65,000** **TOTAL: \$235,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Hymer, W. C. JSC/Morrison, D. R. 51-Biological Sci

NAS 9-15584 **Pennsylvania State University** **3709**
Kidney cell electrophoresis
Period *Obligations*
05/01/78-12/01/80 **FY80:** **TOTAL: \$124,779**
Prin Invest *NASA Tech Officer* *CASE Category*
Todd, P. W. JSC/Morrison, D. R. 56-Medical Sciences

NASW 3256 **Pennsylvania State University** **3710**
Technology support for targeting the reentry of Skylab
Period *Obligations*
01/29/79-08/29/79 **FY80:** **TOTAL: \$35,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Unavailable HD-ML/Mahon, J. B. 42-Astro Engr

NCA 2-589001 **Pennsylvania State University** **3711**
Modeling of African dust
Period *Obligations*
09/01/80-08/31/82 **FY80: \$18,325** **TOTAL: \$18,325**
Prin Invest *NASA Tech Officer* *CASE Category*
Anthes, R. A. ARC/Toon, O. B. 32-Geological Sci

NCC 3-9 **Pennsylvania State University** **3712**
Interdisciplinary collaboration on tribology
Period *Obligations*
05/19/80-05/18/81 **FY80: \$24,259** **TOTAL: \$24,259**
Prin Invest *NASA Tech Officer* *CASE Category*
Klaus, E. E. LERC/Wedeven, L. D. 46-Mech Engr

NCC 5-12 **Pennsylvania State University** **3713**
Research of combined use of remote sensing and seismic observations to infer geologically recent crust deformation
Period *Obligations*
05/01/79-04/30/80 **FY80:** **TOTAL: \$50,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Alexander, S. S. GSFC/Allenby, R. J. 32-Geological Sci
Gold, D. P.

NCC 5-19 **Pennsylvania State University** **3714**
Synthesis of regional crust and upper mantle structure from seismic and gravity data
Period *Obligations*
06/15/79-12/31/80 **FY80:** **TOTAL: \$52,800**
Prin Invest *NASA Tech Officer* *CASE Category*
Alexander, S. S. GSFC/Allenby, R. J. 32-Geological Sci

NGL 39-009-003 **Pennsylvania State University** **3715**
Research on electron densities in upper ionosphere, including studies of rocket and separating capsule experimental techniques
Period *Obligations*
03/01/61-10/31/81 **FY80: \$180,000** **TOTAL: \$2,432,661**
Prin Invest *NASA Tech Officer* *CASE Category*
Nisbet, J. S. HD-ST/Kaiser, M. L. 13-Physics
HD-ST/Schmerling, E. R.

NGL 39-009-007 **Pennsylvania State University** **3716**
Investigation and analysis of flow phenomena of secondary motions in axial flow inducers
Period *Obligations*
12/15/63-10/01/80 **FY80:** **TOTAL: \$279,750**
Prin Invest *NASA Tech Officer* *CASE Category*
Lakshminarayana, B. LERC/Britsch, W. R. 41-Aero Engr

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NSG 39-009-010 **Pennsylvania State University** **3717**
Research to establish criteria for recognition of ancient meteorite impact craters whose characteristic surface forms have been obliterated by erosion

<i>Period</i>	<i>Obligations</i>	
08/08/63-12/31/80	FY80:	TOTAL: \$169,563
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gold, D. P.	HD-SL/Quade, W. L.	32-Geological Sci

NSG 39-009-009 **Pennsylvania State University** **3718**
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$10,600	TOTAL: \$10,600
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nisbet, J. S.	GSFC/Mumma, M. J.	13-Physics

NSG 39-009-001 **Pennsylvania State University** **3719**
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$11,000	TOTAL: \$11,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anthes, R. A.	ARC/Toon, O. B.	19-Phys Sci, NEC

NSG 1308 **Pennsylvania State University** **3720**
Research in propellers for general aviation aircraft

<i>Period</i>	<i>Obligations</i>	
07/01/76-04/30/80	FY80:	TOTAL \$167,691
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McCormick, B. W.	LARC/Fisher, B. D.	41-Aero Engr
	LARC/Hall, A. W.	

NSG 1387 **Pennsylvania State University** **3721**
Growth, perfection and characterization of triglycine-sulfate: A model for zero gravity growth

<i>Period</i>	<i>Obligations</i>	
01/01/77-08/31/80	FY80:	TOTAL: \$106,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
White, W. B.	LARC/Erpp, A. I.	47-Materials Engr
Spear, K. E.	LARC/Crouch, R. K.	
Vedam, K.		

NSG 1580 **Pennsylvania State University** **3722**
Broadband jet noise amplification by a pure tone excitation

<i>Period</i>	<i>Obligations</i>	
12/01/78-11/30/80	FY80: \$39,449	TOTAL: \$75,050
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Morris, P. J.	LARC/Gatski, T. B.	41-Aero Engr
	LARC/Hardin, J. C.	

NSG 2364 **Pennsylvania State University** **3723**
High polymers based on phosphazene and other inorganic systems

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/80	FY80: \$20,000	TOTAL: \$30,406
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Allen, A. L. R.	ARC/Fewell, L. L.	12-Chemistry

NSG 3012 **Pennsylvania State University** **3724**
Compressor or fan rotor wake characteristics

<i>Period</i>	<i>Obligations</i>	
06/28/74-03/27/81	FY80: \$39,472	TOTAL: \$308,510
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lakshminarayana, B.	LERC/Shaw, L. M.	41-Aero Engr

NSG 3032 **Pennsylvania State University** **3725**
Blade end wall flows in compressors

<i>Period</i>	<i>Obligations</i>	
09/01/74-08/29/81	FY80:	TOTAL: \$50,801
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lakshminarayana, B.	LERC/Sockol, P. M.	41-Aero Engr

NSG 3166 **Pennsylvania State University** **3726**
Mapping of electrical potential distributions with charged particle beams

<i>Period</i>	<i>Obligations</i>	
11/01/77-08/30/81	FY80: \$23,706	TOTAL: \$92,813
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Robinson, J. W.	LERC/Staskus, J. V.	13-Physics
	LERC/Stevens, N. J.	

NSG 3212 **Pennsylvania State University** **3727**
End wall flows in rotors and stators of a single stage compressor

<i>Period</i>	<i>Obligations</i>	
08/01/78-11/09/80	FY80: \$66,900	TOTAL: \$128,014
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lakshminarayana, B.	LERC/Sockol, P. M.	41-Aero Engr
	LERC/Sandercrook, D. M.	

NSG 3264 **Pennsylvania State University** **3728**
The boundary layer on compressor cascade blades

<i>Period</i>	<i>Obligations</i>	
06/04/79-11/30/80	FY80:	TOTAL: \$75,417
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kubo, I.	LERC/Sanger, N. I.	41-Aero Engr

NSG 3265 **Pennsylvania State University** **3729**
The large scale structure of turbulence in a rotor wake

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/29/81	FY80: \$47,438	TOTAL: \$112,638
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Morris, P. J.	LERC/Englert, G. W.	41-Aero Engr

NSG 3266 **Pennsylvania State University** **3730**
Three dimensional flow field inside compressor rotor passages, including blade boundary layers

<i>Period</i>	<i>Obligations</i>	
06/26/79-10/15/80	FY80:	TOTAL: \$74,556
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lakshminarayana, B.	LERC/Sockol, P. M.	41-Aero Engr

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NSG 3301 **Pennsylvania State University** **3731**
Mass analysis of neutral particles and ions released during electrical breakdowns on spacecraft surfaces

Period	Obligations	
09/04/79-09/02/81	FY80: \$85,204	TOTAL: \$135,187
Prin Invest	NASA Tech Officer	CASE Category
Kendall, B. R.	LERC/Staskus, J. V.	13-Physics
	LERC/Stevens, N. J.	

NSG 5347 **Pennsylvania State University** **3738**
Satellite data and dynamic principles in understanding global weather phenomena

Period	Obligations	
05/01/79-05/31/80	FY80:	TOTAL: \$58,905
Prin Invest	NASA Tech Officer	CASE Category
Clark, J. H.	GSFC/Greaves, J. R.	31-Atmos Sci
Dutton, J. A.		

NSG 3304 **Pennsylvania State University** **3732**
A study of interactive aerolastic and aerodynamic problems relating to general aviation propellers

Period	Obligations	
10/01/79-12/31/80	FY80:	TOTAL: \$77,955
Prin Invest	NASA Tech Officer	CASE Category
McCormick, B. W.	LERC/Mitchell, G. A.	41-Aero Engr

NSG 6004 **Pennsylvania State University** **3739**
Studies of mesospheric ionization

Period	Obligations	
10/01/75-12/30/80	FY80: \$93,455	TOTAL: \$178,455
Prin Invest	NASA Tech Officer	CASE Category
Hale, L. C.	WFC/Early, L. J.	19-Phys Sci, NEC
	WFC/Pless, R. H.	

NSG 3306 **Pennsylvania State University** **3733**
An investigation of air solubility in jet fuel at high pressure

Period	Obligations	
09/01/79-08/31/81	FY80: \$45,655	TOTAL: \$70,500
Prin Invest	NASA Tech Officer	CASE Category
Faeth, G. M.	LERC/Marer, C. J.	46-Mech Engr

NSG 7465 **Pennsylvania State University** **3740**
Solubilities of C-O-S volatiles in lunar magmas and vapors

Period	Obligations	
07/01/78-03/31/80	FY80:	TOTAL: \$26,218
Prin Invest	NASA Tech Officer	CASE Category
Eggler, D.	HD-SL/Quaide, W. L.	32-Geological Sci

NSG 5185 **Pennsylvania State University** **3734**
Research of the nature and subsurface character of lineaments in Pennsylvania

Period	Obligations	
07/01/77-09/30/80	FY80:	TOTAL: \$65,843
Prin Invest	NASA Tech Officer	CASE Category
Alexander, S. S.	GSFC/Allenby, R. J.	32-Geological Sci
Gold, D. P.		

NSG 7515 **Pennsylvania State University** **3741**
Structure-function studies on thermophilic glutamine synthetase

Period	Obligations	
10/01/78-09/30/80	FY80: \$60,000	TOTAL: \$93,493
Prin Invest	NASA Tech Officer	CASE Category
Wedler, F. C.	HD-SB/Devincenzi, D. L.	12-Chemistry

NSG 5205 **Pennsylvania State University** **3735**
Utilization of satellite data in mesoscale models

Period	Obligations	
09/01/77-12/31/81	FY80: \$49,332	TOTAL: \$118,832
Prin Invest	NASA Tech Officer	CASE Category
Anthes, R. A.	GSFC/Uccellini, L. W.	31-Atmos Sci

NAS 9-14979 **Temple University** **3742**
Ultraviolet-radiation induced skin cancer in experimental animals

Period	Obligations	
04/26/76-03/01/81	FY80: \$25,000	TOTAL: \$319,993
Prin Invest	NASA Tech Officer	CASE Category
Urbach, F.	JSC/Nachtwey, D. S.	56-Medical Sciences

NSG 5212 **Pennsylvania State University** **3736**
Study of high latitude thermospheric densities and flow patterns

Period	Obligations	
10/01/77-12/31/80	FY80:	TOTAL: \$52,012
Prin Invest	NASA Tech Officer	CASE Category
Nisbet, J. S.	GSFC/Spencer, N. W.	13-Physics

NAG 5-92 **University of Pennsylvania** **3743**
Research relative to synthetic aperture radiometry

Period	Obligations	
01/01/81-12/31/81	FY80: \$11,000	TOTAL: \$11,000
Prin Invest	NASA Tech Officer	CASE Category
Kritikos, H. N.	GSFC/Levine, D. M.	45-Elec Engr

NSG 5276 **Pennsylvania State University** **3737**
Synthesis of regional crust and upper-mantle structure from seismic and gravity data

Period	Obligations	
06/15/78-06/14/79	FY80:	TOTAL: \$35,000
Prin Invest	NASA Tech Officer	CASE Category
Alexander, S. S.	GSFC/Allenby, R. J.	32-Geological Sci
Lavin, P. M.	GSFC/Mead, G. D.	

NAG 8-346 **University of Pennsylvania** **3744**
Stellar envelopes of active close binaries to be observed under High Energy Astronomical Observatory-B guest investigator program

Period	Obligations	
03/01/80-02/28/81	FY80: \$11,799	TOTAL: \$11,799
Prin Invest	NASA Tech Officer	CASE Category
Koch, R. H.	MSFC/Jones, J. B.	11-Astronomy
Plavec, M. J.		

NASA'S UNIVERSITY PROGRAM
PENNSYLVANIA (Continued)

NAS 2-10070 **University of Pennsylvania** **3745**
Development of theoretical models for graphite like atomic structures
Period *Obligations*
10/02/78-09/01/80 **FY80:** **TOTAL: \$18,995**
Prin Invest *NASA Tech Officer* *CASE Category*
Rabii, S. ARC/Hansen, C. F. 13-Physics

NAS 8-33336 **University of Pennsylvania** **3746**
Simultaneous X-ray and radio observation of extragalactic sources
Period *Obligations*
02/20/79-02/19/81 **FY80:** **TOTAL: \$6,243**
Prin Invest *NASA Tech Officer* *CASE Category*
Shen, B. S. MSFC/Jones, J. B., Jr. 11-Astronomy
Johnston, K. J.

NAS 9-15531 **University of Pennsylvania** **3747**
Development phase for spacelab experiment
Period *Obligations*
03/01/78-07/01/81 **FY80: \$97,000** **TOTAL: \$377,774**
Prin Invest *NASA Tech Officer* *CASE Category*
Brown, A. H. JSC/Peck, E. E. 59-Life Sci, NEC

NAS 9-15789 **University of Pennsylvania** **3748**
Development of a computer code to determine interactions of cosmic rays with spacecraft and biological materials
Period *Obligations*
04/01/79-08/31/80 **FY80:** **TOTAL: \$29,750**
Prin Invest *NASA Tech Officer* *CASE Category*
Shen, B. S. JSC/Barnes, C. M. 39-Env Sci, NEC

NAS 9-16031 **University of Pennsylvania** **3749**
Life science flight experiment on protein metabolism
Period *Obligations*
01/17/80-05/31/81 **FY80: \$12,538** **TOTAL: \$12,538**
Prin Invest *NASA Tech Officer* *CASE Category*
Stein, T. D. JSC/White, T. T. 59-Life Sci, NEC

NGR 39-010-149 **University of Pennsylvania** **3750**
Plant morphogenesis under conditions of hypo and hypergravia
Period *Obligations*
09/01/73-03/31/81 **FY80: \$23,969** **TOTAL: \$424,469**
Prin Invest *NASA Tech Officer* *CASE Category*
Brown, A. H. HD-SB/Halstead, T. W. 51-Biological Sci

NSG 3300 **University of Pennsylvania** **3751**
Development of new intercalated cathode materials in use in sodium batteries
Period *Obligations*
10/01/79-12/15/80 **FY80: \$69,575** **TOTAL: \$69,575**
Prin Invest *NASA Tech Officer* *CASE Category*
Worrell, W. L. LERC/Singer, J. 19-Phys Sci, NEC

NSG 5296 **University of Pennsylvania** **3752**
Ultraviolet spectroscopy of peculiar eclipsing binary stars
Period *Obligations*
08/01/78-06/30/81 **FY80: \$9,983** **TOTAL: \$22,854**
Prin Invest *NASA Tech Officer* *CASE Category*
Koch, R. H. GSFC/Bogges, A. 11-Astronomy
Pfeiffer, R. J.
Williams, R. E.

NAG 2-53 **University of Pittsburgh** **3753**
A survey of nearby stars for the perturbative effects of extrasolar planetary systems
Period *Obligations*
09/01/80-11/30/80 **FY80: \$21,060** **TOTAL: \$21,060**
Prin Invest *NASA Tech Officer* *CASE Category*
Gatewood, G. D. ARC/Black, D. C. 11-Astronomy

NAG 3-44 **University of Pittsburgh** **3754**
Investigation into the role of NAC dependency on oxide and metal substrates in the initiation of hot corrosion
Period *Obligations*
04/01/80-03/30/83 **FY80: \$59,970** **TOTAL: \$59,970**
Prin Invest *NASA Tech Officer* *CASE Category*
Birks, N. LERC/Kohl, F. J. 47-Materials Engr
LERC/Fieldner, W. L.

NAG 6-2 **University of Pittsburgh** **3755**
Studies of the physics and chemistry of the terrestrial atmosphere
Period *Obligations*
10/01/79-09/30/80 **FY80: \$155,231** **TOTAL: \$155,231**
Prin Invest *NASA Tech Officer* *CASE Category*
Zipf, E. C. WFC/Early, L. J. 19-Phys Sci, NEC
WFC/Pless, R. H.

NAS 3-22662 **University of Pittsburgh** **3756**
Presentation of symposia and reports in advanced electrical propulsion
Period *Obligations*
09/23/80-09/22/81 **FY80: \$54,747** **TOTAL: \$54,747**
Prin Invest *NASA Tech Officer* *CASE Category*
McWilliams, P. A. LERC/Kerslake, W. R. 42-Astro Engr

NAS 5-25013 **University of Pittsburgh** **3757**
Study of infrared detection by intracavity upconversion
Period *Obligations*
05/09/78-05/31/81 **FY80: \$51,864** **TOTAL: \$146,504**
Prin Invest *NASA Tech Officer* *CASE Category*
Falk, J. GSFC/Kostiuk, T. 13-Physics
GSFC/Ogilvie, K. W.

NASW 3042 **University of Pittsburgh** **3758**
Operation of an industrial application center
Period *Obligations*
06/29/77-03/31/80 **FY80: \$211,101** **TOTAL: \$835,851**
Prin Invest *NASA Tech Officer* *CASE Category*
Unavailable HD-ET/Bivins, R. G. 99-Multi-Discip

NASA'S UNIVERSITY PROGRAM
PENNSYLVANIA (Continued)

NASW 3403 **University of Pittsburgh** **3759**
Operation of a NASA Industrial Application Center (IAC)
Period *Obligations*
04/01/80-03/31/81 FY80: \$334,029 TOTAL: \$334,029
Prin Invest *NASA Tech Officer* *CASE Category*
Thompson, J. H. HD-ET/Bivins, R. G. 22-Computer Science
Williams, P. A. Fisher, A.

NGR 39-011-161 **University of Pittsburgh** **3765**
Laboratory studies of kinetics of tropospheric and stratospheric aircraft pollutant reactions using atomic and molecular resonance fluorescence detection
Period *Obligations*
06/03/73-02/28/81 FY80: \$65,038 TOTAL: \$396,038
Prin Invest *NASA Tech Officer* *CASE Category*
Kaufman, F. HD-EB/Toth, R. A. 12-Chemistry
HD-ST/Seals, R. K., Jr.

NCA 2-592901 **University of Pittsburgh** **3760**
Vestibular nuclei neuron activity in freely moving cats
Period *Obligations*
03/01/79-02/28/81 FY80: \$9,715 TOTAL: \$17,715
Prin Invest *NASA Tech Officer* *CASE Category*
Tomko, D. L. ARC/Daunton, N. G. 51-Biological Sci

NSG 2407 **University of Pittsburgh** **3766**
Theoretical studies of the electronic structure of small metal clusters
Period *Obligations*
10/01/79-03/31/81 FY80: \$14,000 TOTAL: \$38,000
Prin Invest *NASA Tech Officer* *CASE Category*
Jordan, K. D. ARC/Cooper, D. M. 13-Physics

NGL 39-011-013 **University of Pittsburgh** **3761**
Investigation of airglow excitation mechanisms using atomic beam techniques
Period *Obligations*
04/26/65-03/01/81 FY80: \$14,996 TOTAL: \$708,730
Prin Invest *NASA Tech Officer* *CASE Category*
Fite, W. L. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NSG 3163 **University of Pittsburgh** **3767**
Determination of efficiencies, loss mechanisms and performance degradation factors in chopper controlled dc vehicle motors
Period *Obligations*
09/01/77-08/30/80 FY80: TOTAL: \$140,112
Prin Invest *NASA Tech Officer* *CASE Category*
Hamilton, H. B. LERC/McBrien, E. F. 45-Elec Engr

NGL 39-011-030 **University of Pittsburgh** **3762**
Studies of excitation and collision deactivation of measurable A3 state of nitrogen in the aurora and day airglow
Period *Obligations*
05/07/65-04/30/81 FY80: \$26,000 TOTAL: \$1,084,886
Prin Invest *NASA Tech Officer* *CASE Category*
Zipf, E. C. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NSG 3214 **University of Pittsburgh** **3768**
Investigation of initiation stage of hot corrosion in NU-base alloys
Period *Obligations*
09/01/78-09/01/81 FY80: TOTAL: \$59,996
Prin Invest *NASA Tech Officer* *CASE Category*
Meier, G. H. LERC/Kohl, F. J. 47-Materials Engr
LERC/Stearns, C. A.

NGL 39-011-085 **University of Pittsburgh** **3763**
Studies relating to surfaces of Moon and planets
Period *Obligations*
03/17/69-03/31/80 FY80: TOTAL: \$339,299
Prin Invest *NASA Tech Officer* *CASE Category*
Cassidy, W. A. HD-SL/Quaide, W. L. 32-Geological Sci
Hapke, B.

NSG 5270 **University of Pittsburgh** **3769**
Lithological characterization of crystalline cement rock provinces in the United States
Period *Obligations*
04/15/78-07/14/81 FY80: TOTAL: \$44,755
Prin Invest *NASA Tech Officer* *CASE Category*
Lidiak, E. G. GSFC/Thomas, H. H. 32-Geological Sci

NGR 39-011-137 **University of Pittsburgh** **3764**
Dissociative recombination coefficients for planetary ionospheric ions
Period *Obligations*
07/28/71-05/31/81 FY80: \$84,915 TOTAL: \$299,251
Prin Invest *NASA Tech Officer* *CASE Category*
Biondi, M. A. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NSG 5362 **University of Pittsburgh** **3770**
Measurement of the far ultraviolet spectral reflections of selected lunar areas
Period *Obligations*
05/09/79-06/08/81 FY80: \$8,000 TOTAL: \$19,000
Prin Invest *NASA Tech Officer* *CASE Category*
Hapke, B. GSFC/Bogges, A. 11-Astronomy

NASA'S UNIVERSITY PROGRAM **PENNSYLVANIA (Continued)**

NSG 6011 **University of Pittsburgh** **3771**
Studies of the physics and chemistry of the terrestrial atmosphere

Period	Obligations
10/01/75-10/31/79	FY80: \$627,022 TOTAL: \$627,022
Prin Invest	NASA Tech Officer CASE Category
Zipl, E. C.	WFC/Gray, J. W. 19-Phys Sci, NEC
Bernstein, W.	WFC/Pless, R. H.

NSG 7147 **University of Pittsburgh** **3772**
Photometric analyses of Mariner 10 images of Venus and Mercury

Period	Obligations
06/23/75-11/30/80	FY80: \$28,058 TOTAL: \$150,361
Prin Invest	NASA Tech Officer CASE Category
Hapke, B.	HD-SL/Boyce, J. M. 11-Astronomy

NSG 7631 **University of Pittsburgh** **3773**
Measurement of reflectivities of rocks, minerals and glasses in the vacuum ultraviolet

Period	Obligations
06/01/79-02/29/81	FY80: \$50,005 TOTAL: \$96,297
Prin Invest	NASA Tech Officer CASE Category
Hapke, B.	HD-SL/Quaide, W. L. 32-Geological Sci
	HD-SL/French, B.

NAS 1-16095 **Villanova University** **3774**
Gust response of wide-bodied jet aircraft including autopilot studies

Period	Obligations
01/29/80-04/12/81	FY80: \$35,563 TOTAL: \$35,563
Prin Invest	NASA Tech Officer CASE Category
Goldberg, J. H.	LARC/Crabill, N. L. 41-Aero Engr
	LARC/Houbolt, J. C.

NSC 5375 **Villanova University** **3775**
Ultraviolet observations of hot white dwarfs in binary systems

Period	Obligations
07/01/79-06/30/81	FY80: \$3,771 TOTAL: \$9,351
Prin Invest	NASA Tech Officer CASE Category
Guinan, E. F.	GSFC/Boggess, A. 11-Astronomy
Sion, E. M.	

NAS 6-3096 **West Chester State College** **3776**
Waterborne organic matter analysis

Period	Obligations
04/18/80-04/17/81	FY80: \$4,909 TOTAL: \$4,909
Prin Invest	NASA Tech Officer CASE Category
Yungel, J.	WFC/Hoge, F. E. 33-Oceanography
Ugeh, F.	WFC/McGoogan, J. T.

RHODE ISLAND

NAG 5-50 **Brown University** **3777**
Study of the effects of continental wakes

Period	Obligations
06/01/80-05/31/81	FY80: \$40,129 TOTAL: \$40,129
Prin Invest	NASA Tech Officer CASE Category
Parmentier, E. M.	GSFC/Holweck, E. C. 32-Geological Sci
Forsyth, D. W.	GSFC/Mead, G. D.

NAGW 28 **Brown University** **3778**
Remote sensing information applied to geological studies of planets

Period	Obligations
02/14/80-02/13/81	FY80: \$113,691 TOTAL: \$113,691
Prin Invest	NASA Tech Officer CASE Category
Head, J. W.	HD-SL/Quaide, W. L. 32-Geological Sci
	HD-SL/French, B. M.

NAS 5-26138 **Brown University** **3779**
Electromagnetic deep-probing of the Earth's interior from artificial satellites: Constraints on the regional emplacement of crustal resources

Period	Obligations
05/05/80-10/05/82	FY80: \$49,000 TOTAL: \$49,000
Prin Invest	NASA Tech Officer CASE Category
Hermance, J. F.	GSFC/Oscorff, H. 31-Atmos Sci

NASW 3285 **Brown University** **3780**
Support for a regional planetary image facility

Period	Obligations
10/01/78-01/31/80	FY80: \$44,081 TOTAL: \$44,081
Prin Invest	NASA Tech Officer CASE Category
Head, J. W.	HD-SL/Dwornik, S. E. 32-Geological Sci
	HD-SL/Boyce, J. M.

NGR 40-002-088 **Brown University** **3781**
Analysis of Martian geologic features of Earth analogs

Period	Obligations
10/20/69-11/30/80	FY80: \$101,600 TOTAL: \$688,336
Prin Invest	NASA Tech Officer CASE Category
Head, J. W.	HD-SL/Boyce, J. M. 32-Geological Sci
	HD-SL/Quaide, W. L.

NGR 40-002-116 **Brown University** **3782**
Lunar basins processes and structure

Period	Obligations
02/20/73-01/31/81	FY80: \$80,300 TOTAL: \$597,839
Prin Invest	NASA Tech Officer CASE Category
Head, J. W.	HD-SL/Boyce, J. M. 32-Geological Sci
	HD-SL/Quaide, W. L.

NASA'S UNIVERSITY PROGRAM **RHODE ISLAND (Continued)**

NGT 40-002-800 **Brown University** **3783**
Graduate student researchers program

Period	Obligations
09/01/80-08/31/81	FY80: \$10,585 TOTAL: \$10,585
Prin Invest	NASA Tech Officer CASE Category
Doepfner, T. W., Jr.	LARC/Yates, E. C., Jr. 41-Aero Engr

NSG 1617 **Brown University** **3784**
Analytical and numerical gas dynamics

Period	Obligations
06/01/79-05/31/81	FY80: \$36,365 TOTAL: \$61,735
Prin Invest	NASA Tech Officer CASE Category
Sirovich, L.	LARC/Townsend, J. C. 41-Aero Engr
Lewis, T. S.	LARC/Miller, D. S.

NSG 7569 **Brown University** **3785**
Analysis of rocks and substrate as revealed in Viking Lander images

Period	Obligations
04/01/79-09/30/80	FY80: \$95,700 TOTAL: \$138,700
Prin Invest	NASA Tech Officer CASE Category
Head, J. W.	HD-SL/Boyce, J. M. 32-Geological Sci
	HD-SL/Quaide, W. L.

NSG 7570 **Brown University** **3786**
Surface processes on Mars and its satellites with emphasis on cratering, volcanism and the evolution of Valles Marineris

Period	Obligations
04/01/79-09/30/80	FY80: \$98,387 TOTAL: \$146,387
Prin Invest	NASA Tech Officer CASE Category
Head, J. W.	HD-SL/Boyce, J. M. 32-Geological Sci
	HD-SL/Quaide, W. L.

NSG 7589 **Brown University** **3787**
Experimental investigation of basalt-C-O-H-S gas equilibria and fumarolic alteration on Mars

Period	Obligations
03/01/79-12/31/80	FY80: \$42,923 TOTAL: \$65,628
Prin Invest	NASA Tech Officer CASE Category
Rutherford, M. J.	HD-SL/Quaide, W. L. 32-Geological Sci
	HD-SL/Boyce, J. M.

NSG 7605 **Brown University** **3788**
Endogenic processes affect in the surfaces of Ganymede and Callisto

Period	Obligations
05/01/79-03/31/81	FY80: \$40,014 TOTAL: \$81,736
Prin Invest	NASA Tech Officer CASE Category
Parmentier, E. M.	HD-SL/Quaide, W. L. 32-Geological Sci
	HD-SL/French, B. M.

NSG 1495 **University of Rhode Island** **3789**
Use of numerical continental shelf circulation and pollutant transport models for analysis of remotely sensed data

Period	Obligations
02/01/78-01/31/81	FY80: \$50,487 TOTAL: \$119,585
Prin Invest	NASA Tech Officer CASE Category
Spaulding, M. L.	LARC/Campbell, J. W. 33-Oceanography

NSG 7414 **University of Rhode Island** **3790**
Paleoflow processes and formation of Martian channels

Period	Obligations
10/01/77-12/31/81	FY80: \$25,363 TOTAL: \$63,344
Prin Invest	NASA Tech Officer CASE Category
Boothroyd, J. C.	HD-SL/Boyce, J. M. 32-Geological Sci
	HD-SL/Holt, H. E.

SOUTH CAROLINA

NSG 5420 **Citadel Military College of S C** **3791**
Observations of spectrum variability of hot peculiar A stars

Period	Obligations
11/01/79-06/30/81	FY80: \$10,590 TOTAL: \$10,590
Prin Invest	NASA Tech Officer CASE Category
Adelman, S. J.	GSFC/Bogges, A. 11-Astronomy
Shore, S. N.	

NAG 1-81 **Clemson University - Clemson** **3792**
Integrated controls concepts

Period	Obligations
10/01/80-09/30/81	FY80: \$32,259 TOTAL: \$32,259
Prin Invest	NASA Tech Officer CASE Category
Fennell, R. E.	LARC/Lallman, F. J. 21-Mathematics

NAG 3-116 **Clemson University - Clemson** **3793**
Research and development of an artificial finger joint grommet using ion thruster technology

Period	Obligations
10/01/80-09/30/81	FY80: \$51,811 TOTAL: \$51,811
Prin Invest	NASA Tech Officer CASE Category
Park, J. B.	LERC/Weigand, A. J. 56-Medical Sciences
	LERC/Banks, B. A.

NAS 8-33524 **Clemson University - Clemson** **3794**
Hot tensile tests of Inconel 718 microfissuring of EB welds in Inconel 718

Period	Obligations
02/29/80-10/31/80	FY80: \$14,958 TOTAL: \$14,958
Prin Invest	NASA Tech Officer CASE Category
Thompson, R. G.	MSFC/Nunes, A. C. 47-Materials Engr
	MSFC/Strong, J. S.

NSG 1297 **Clemson University - Clemson** **3795**
Crack growth in bonded isotropic and orthotropic elastic half-planes

Period	Obligations
04/01/76-10/15/81	FY80: \$107,775 TOTAL: \$205,833
Prin Invest	NASA Tech Officer CASE Category
Gorce, J. G.	LARC/Poe, C. C., Jr. 46-Mech Engr
	LARC/Kennedy, J. M.

NASA'S UNIVERSITY PROGRAM SOUTH CAROLINA (Continued)

NSG 1411 **Clemson University - Clemson** **3796**
Optimization of fiber reinforced structures to satisfy aeroelastic requirements
Period *Obligations*
07/01/77-06/30/81 **FY80:** **TOTAL: \$29,355**
Prin Invest *NASA Tech Officer* *CASE Category*
Rudisill, C. S. LARC/Doggett, R. V., Jr. 41-Aero Engr
Bauld, N. R., Jr.

NSG 3225 **Clemson University - Clemson** **3797**
Development of a percutaneous implant using ion-beam sputtering technique
Period *Obligations*
09/15/78-09/14/80 **FY80:** **TOTAL: \$16,545**
Prin Invest *NASA Tech Officer* *CASE Category*
Park, J. B. LERC/Weigand, A. J.
Vonrecum, A. F. LERC/Banks, B.A. 56-Medical Sciences
Kenner, G. H.

NSG 5349 **Clemson University - Clemson** **3798**
Forecasting tropical cyclone recurvature with upper tropospheric winds
Period *Obligations*
05/01/79-04/30/81 **FY80: \$28,765** **TOTAL: \$59,602**
Prin Invest *NASA Tech Officer* *CASE Category*
Centry, R. C. GSFC/Rodgers, E. B. 31-Atmos Sci

NSG 5350 **Clemson University - Clemson** **3799**
Research of the genises of tornadoes associated with hurricanes
Period *Obligations*
05/01/79-04/30/81 **FY80: \$35,408** **TOTAL: \$67,993**
Prin Invest *NASA Tech Officer* *CASE Category*
Gentry, R. C. GSFC/Wexler, R. 31-Atmos Sci

NAG 5-97 **Furman University** **3800**
Enhancement of a computer model describing the deposition of auroral electron energy
Period *Obligations*
08/15/80-11/14/80 **FY80: \$3,338** **TOTAL: \$3,338**
Prin Invest *NASA Tech Officer* *CASE Category*
Porter, H. S. GSFC/Mayr, H. G. 31-Atmos Sci

NAG 3-75 **University of South Carolina** **3801**
Automated data analysis system in laser speckle interferometry and boundary integral equation methods
Period *Obligations*
06/06/80-06/05/81 **FY80: \$35,000** **TOTAL: \$35,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Ranson, W. F. LARC/Decker, A. J. 46-Mech Engr

NAS 8-28660 **University of South Carolina** **3802**
Study of microwave down-converters operating in KU band
Period *Obligations*
04/19/72-06/30/79 **FY80: \$2,957** **TOTAL: \$107,955**
Prin Invest *NASA Tech Officer* *CASE Category*
Fell, R. G. MSFC/Lowrey, D. O. 45-Elec Engr
MSFC/Stephens, J. K.

NAS13-144 **University of South Carolina** **3803**
Evaluation of domestic information system for state government application
Period *Obligations*
03/28/80-04/27/81 **FY80: \$35,000** **TOTAL: \$35,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Cowen, D. J. GSFC/Dalton, J. 32-Geological Sci

NSG 7096 **University of South Carolina** **3804**
A model for the formation of protocells from glycine-rich proteinoids
Period *Obligations*
10/08/74-08/31/80 **FY80:** **TOTAL: \$138,037**
Prin Invest *NASA Tech Officer* *CASE Category*
Rohlfing, D. L. HD-SB/Devincenzi, D. L. 51-Biological Sci

NSG 7504 **University of South Carolina** **3805**
Application of LANDSAT data in South Carolina
Period *Obligations*
12/01/78-11/30/82 **FY80: \$100,000** **TOTAL: \$300,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Jankowski, M. D. HD-ET/Vitale, J. A. 39-Env Sci, NEC

SOUTH DAKOTA

NAS 9-15522 **South Dakota School of Mines & Tech** **3806**
Development of microprocessor-controlled Lower Body Negative Pressure (LBNP) system
Period *Obligations*
05/15/78-08/15/79 **FY80:** **TOTAL: \$23,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Gowen, R. J. JSC/Hull, W. E. 59-Life Sci, NEC

NAS 9-16028 **South Dakota School of Mines & Tech** **3807**
Life science flight experiments: Determination of segmented fluid shifts in humans which accompany the onset of weightlessness
Period *Obligations*
01/17/80-10/31/80 **FY80: \$19,335** **TOTAL: \$19,335**
Prin Invest *NASA Tech Officer* *CASE Category*
Gowen, R. J. JSC/French, B. 59-Life Sci, NEC

NAG 5-37 **South Dakota State University** **3808**
Irrigation management with remote sensing
Period *Obligations*
04/01/80-03/31/81 **FY80: \$29,945** **TOTAL: \$29,945**
Prin Invest *NASA Tech Officer* *CASE Category*
Heilman, J. L. GSFC/Salomonsen, V. V.
Moore, D. GSFC/Rango, A. 55-Agriculture Sci
Myers, V. I.

NASA'S UNIVERSITY PROGRAM SOUTH DAKOTA (Continued)

NAS 5-24206 South Dakota State University 3809
Applications of heat capacity mapping mission satellite data to the study of urban heating patterns
Period *Obligations*
06/22/77-11/21/80 FY80: \$14,695 TOTAL: \$108,465
Prin Invest NASA Tech Officer CASE Category
Moore, D. GSFC/Gordon, F. 99-Multi-Discip

NAS 5-23801 Meharry Medical College 3815
Investigation of medical information management system application in a complex health care facility
Period *Obligations*
12/07/76-02/07/81 FY80: TOTAL: \$110,564
Prin Invest NASA Tech Officer CASE Category
Braun, G. GSFC/Alterescu, S. 56-Medical Sciences
GSFC/Buchanan, P.

NGL 42-003-007 South Dakota State University 3810
Remote sensing of soils, land forms, and land use in the northern Great Plains in preparation for ERTS applications
Period *Obligations*
07/27/70-06/30/83 FY80: \$150,000 TOTAL: \$1,650,000
Prin Invest NASA Tech Officer CASE Category
Myers, V. I. HD-ET/Vitale, J. A. 39-Env Sci, NEC

NGT 43-014-750 Tennessee State University 3816
Training of undergraduate students in sciences and engineering
Period *Obligations*
06/01/75-05/31/81 FY80: \$14,000 TOTAL: \$86,750
Prin Invest NASA Tech Officer CASE Category
Malkani, M. J. HD-LU/Pohly, J. G. 49-Engr, NEC

NSG 5396 South Dakota State University 3811
Advanced microwave soil moisture studies
Period *Obligations*
07/01/79-02/28/81 FY80: \$60,452 TOTAL: \$91,153
Prin Invest NASA Tech Officer CASE Category
Heilman, J. L. GSFC/Schmugge, T. J. 39-Env Sci, NEC
GSFC/Wang, J. R.

NGT 43-014-790 Tennessee State University 3817
Pre-cooperative engineering education program
Period *Obligations*
08/01/79-07/31/80 FY80: TOTAL: \$2,455
Prin Invest NASA Tech Officer CASE Category
Malkani, M. J. HD-LU/Pohly, J. G. 49-Engr, NEC
LERC/Allen, R. P.

NAG 8-7 Tennessee Technological University 3818
Evaluation of a wind-wheel electric-power generator
Period *Obligations*
06/01/80-05/31/81 FY80: \$10,587 TOTAL: \$10,587
Prin Invest NASA Tech Officer CASE Category
Swim, W. B. MSFC/Smith, A. D. 46-Mech Engr
MSFC/Kent, M. I.

TENNESSEE

NSG 5297 Fisk University 3812
Neutrino interactions at cosmic ray energies
Period *Obligations*
09/01/78-08/31/80 FY80: \$1,411 TOTAL: \$58,011
Prin Invest NASA Tech Officer CASE Category
Mickens, R. E. GSFC/Stecker, F. W. 13-Physics

NGR 43-003-015 Tennessee Technological University 3819
Investigation of open-loop amplification of Reynolds number dependent processes
Period *Obligations*
09/16/71-10/31/79 FY80: TOTAL: \$170,120
Prin Invest NASA Tech Officer CASE Category
Ventrice, M. B. LERC/Priem, R. J. 46-Mech Engr

NSG 8060 Fisk University 3813
Optical characterization of zero-gravity grown crystals
Period *Obligations*
04/17/78-02/16/81 FY80: \$63,876 TOTAL: \$163,999
Prin Invest NASA Tech Officer CASE Category
Silberman, E. MSFC/Kroes, R. L. 13-Physics
Springer, J. MSFC/Kent, M. I.

NAG 1-32 University of Tennessee - Knoxville 3820
A tensor-product finite element algorithm for Navier-Stokes solutions at large Reynolds number
Period *Obligations*
02/01/80-01/31/81 FY80: \$23,180 TOTAL: \$23,180
Prin Invest NASA Tech Officer CASE Category
Baker, A. J. LARC/Smith, R. E. 21-Mathematics
LARC/Shoosmith, J. N.

NSG 1593 Le Moyne-Owen College 3814
Calibration of the quartz crystal microbalance cascade impactor using the Berglund-Liu monodisperse aerosol generator for aerosol studies in the atmosphere
Period *Obligations*
02/01/79-01/31/81 FY80: \$37,553 TOTAL: \$70,585
Prin Invest NASA Tech Officer CASE Category
Matthews, N. LARC/Woods, D. C. 31-Atmos Sci

NAG 3-18 University of Tennessee - Knoxville 3821
A coordinate mapping procedure for the computation of variable duct acoustics
Period *Obligations*
01/01/80-12/31/80 FY80: \$20,000 TOTAL: \$20,000
Prin Invest NASA Tech Officer CASE Category
White, J. W. LERC/Baumeister, K. J. 41-Aero Engr
LERC/Rice, E. J.

NASA'S UNIVERSITY PROGRAM

TENNESSEE (Continued)

NAG 3-83 University of Tennessee - Knoxville **3822**
 Time dependent local heat transfer coefficient variations during
 the ice accretion process on aircraft surfaces
Period Obligations
 07/14/80-07/13/81 FY80: \$68,972 TOTAL: \$68,972
Prin Invest NASA Tech Officer CASE Category
 Keshock, E. G. LERC/Shaw, R. J. 41-Aero Engr

NAG 3-86 University of Tennessee - Knoxville **3823**
 Aerodynamically forced vibration of radial flow components
Period Obligations
 07/14/80-07/13/81 FY80: \$45,000 TOTAL: \$45,000
Prin Invest NASA Tech Officer CASE Category
 Caruthers, J. E. LERC/Rostafinski, W. 41-Aero Engr
 Kurosaka, M.

NAG 3-90 University of Tennessee - Knoxville **3824**
 Scaling analysis of the ice accretion process for the purpose of
 establishing scaling criteria for experimental testing
Period Obligations
 08/04/80-08/03/81 FY80: \$41,860 TOTAL: \$41,860
Prin Invest NASA Tech Officer CASE Category
 Keshock, E. G. LERC/Shaw, R. J. 41-Aero Engr

NAS 2-10528 University of Tennessee - Knoxville **3825**
 Regulation of erythropoiesis in mice during spaceflight
Period Obligations
 01/17/80-12/31/80 FY80: \$33,543 TOTAL: \$33,543
Prin Invest NASA Tech Officer CASE Category
 Dunn, C. D. ARC/Ferandin, J. 51-Biological Sci
 ARC/Polson, P.

NAS 5-24250 University of Tennessee - Knoxville **3826**
 A study of modulation and data-transfer techniques applied to
 satellite data collection
Period Obligations
 08/02/77-12/31/79 FY80: \$12,904 TOTAL: \$70,239
Prin Invest NASA Tech Officer CASE Category
 Rochelle, R. W. GSFC/Allen, W. 45-Elec Engr
 Smith, S.

NAS 5-25428 University of Tennessee - Knoxville **3827**
 Development of theoretical molecular models for line positions
 and strengths of several methane bands
Period Obligations
 12/27/78-12/27/80 FY80: \$10,000 TOTAL: \$30,000
Prin Invest NASA Tech Officer CASE Category
 Fox, K. GSFC/Maguire, W. C. 13-Physics
 GSFC/Kunde, V. G.

NAS 8-29271 University of Tennessee - Knoxville **3828**
 Application of image enhancement techniques to remote manipula-
 tor operations
Period Obligations
 01/08/73-02/07/80 FY80: \$2,000 TOTAL: \$255,692
Prin Invest NASA Tech Officer CASE Category
 Gonzalez, R. C. MSFC/Craig, G. D. 45-Elec Engr
 MSFC/Bordelon, C.

NAS 8-32031 University of Tennessee - Knoxville **3829**
 Field study of advection fog
Period Obligations
 09/01/76-01/18/81 FY80: \$36,000 TOTAL: \$114,985
Prin Invest NASA Tech Officer CASE Category
 Connett, J. R. MSFC/Vaughan, O. H. 31-Atmos Sci
 MSFC/Anderson, B. J.

NAS 8-32611 University of Tennessee - Knoxville **3830**
 Ice chambers design and warm fog microphysics applicable to
 the understanding and interpretation of flight experiments under
 low gravity conditions
Period Obligations
 07/29/77-06/30/80 FY80: TOTAL: \$75,708
Prin Invest NASA Tech Officer CASE Category
 Carter, J. M. MSFC/Anderson, J. J. 39-Env Sci, NEC
 MSFC/Vav J. H.

NAS 8-32692 University of Tennessee - Knoxville **3831**
 Gust gradient analysis
Period Obligations
 07/07/78-04/05/81 FY80: \$89,988 TOTAL: \$254,198
Prin Invest NASA Tech Officer CASE Category
 Frost, W. MSFC/Camp, D. W. 31-Atmos Sci
 MSFC/Alexander, M. B.

NAS 8-33386 University of Tennessee - Knoxville **3832**
 Theoretical analysis of baroclinic flows
Period Obligations
 08/13/79-02/28/81 FY80: \$40,500 TOTAL: \$45,500
Prin Invest NASA Tech Officer CASE Category
 Antar, B. N. MSFC/Fowles, W. W. 31-Atmos Sci
 MSFC/Fichtl, G. H.

NAS 8-33447 University of Tennessee - Knoxville **3833**
 Vehicle motion requirements for scientific experiments in space
Period Obligations
 05/10/79-02/15/81 FY80: \$6,000 TOTAL: \$11,000
Prin Invest NASA Tech Officer CASE Category
 Antar, B. MSFC/Fichtl, G. H. 13-Physics
 Collins, F. MSFC/Campbell, W.

NAS 8-33604 University of Tennessee - Knoxville **3834**
 Study relative to develop a microwave antenna pointing error
 sensing scheme
Period Obligations
 08/01/79-02/01/80 FY80: TOTAL: \$19,600
Prin Invest NASA Tech Officer CASE Category
 Hung, J. C. MSFC/Howell, J. T., Jr. 45-Elec Engr
 Lee, C. W.
 Peebles, P. Z.

**NASA'S UNIVERSITY PROGRAM
TENNESSEE (Continued)**

NAS 8-33849 University of Tennessee - Knoxville 3835
Gravity Probe-B (GP-B) pointing control and error analysis, study

Period	Obligations	
04/24/80-10/24/80	FY80: \$10,000	TOTAL: \$10,000
Prin Invest	NASA Tech Officer	CASE Category
Hung, J. C.	MSFC/Parker, J. R.	13-Physics
	MSFC/Nurric, G. S.	

NAS 9-15164 University of Tennessee - Knoxville 3836
Influence of space flight on erythropoietin activity and inhibition

Period	Obligations	
10/21/76-07/31/80	FY80: \$39,517	TOTAL: \$215,117
Prin Invest	NASA Tech Officer	CASE Category
Dunn, C. D.	JSC/Leach, C. S.	56-Medical Sciences

NAS10-9834 University of Tennessee - Knoxville 3837
Develop the mechanical component of a high precision strain gage accelerometer

Period	Obligations	
04/28/80-04/28/81	FY80: \$20,000	TOTAL: \$20,000
Prin Invest	NASA Tech Officer	CASE Category
Speckhart, F. H.	KSC/Reynolds, E. A.	49-Engr, NEC

NCA 2-772901 University of Tennessee - Knoxville 3838
Theoretical analysis on the boundary layer development over a slotted wind tunnel wall

Period	Obligations	
05/01/79-04/30/81	FY80:	TOTAL: \$39,956
Prin Invest	NASA Tech Officer	CASE Category
Tirres, C.	ARC/Steinle, F. W., Jr.	41-Aero Engr
Wu, J. M.		

NGL 43-001-006 University of Tennessee - Knoxville 3839
Spectroscopic studies of life shape of atmospheric gases and of absorption bands of inorganic solids

Period	Obligations	
01/07/64-09/01/81	FY80:	TOTAL: \$1,318,628
Prin Invest	NASA Tech Officer	CASE Category
Gailar, N. M.	HD-SL/Murphy, R. E.	31-Atmos Sci

NGL 43-001-140 University of Tennessee - Knoxville 3840
Experimental investigations of opaque minerals and cooling history of lunar rocks

Period	Obligations	
09/01/73-01/31/81	FY80: \$48,652	TOTAL: \$458,757
Prin Invest	NASA Tech Officer	CASE Category
Taylor, L. A.	JSC/Harris, J. W.	11-Astronomy

NGT 43-001-800 University of Tennessee - Knoxville 3841
Graduate student researchers program

Period	Obligations	
06/01/80-05/31/81	FY80: \$11,000	TOTAL: \$11,000
Prin Invest	NASA Tech Officer	CASE Category
Taylor, L. A.	JSC/Williams, R.	32-Geological Sci

NSG 1224 University of Tennessee - Knoxville 3842
A study of unsteady transonic flow analysis

Period	Obligations	
08/07/75-12/31/80	FY80: \$30,000	TOTAL: \$130,591
Prin Invest	NASA Tech Officer	CASE Category
Kimble, K. R.	LARC/Bland, S. R.	41-Aero Engr
	LARC/Whitlon, W.	

NSG 2379 University of Tennessee - Knoxville 3843
Transonic slotted wind tunnel wall boundary layer flow study

Period	Obligations	
05/01/79-12/31/80	FY80:	TOTAL: \$36,630
Prin Invest	NASA Tech Officer	CASE Category
Wu, J. M.	ARC/Steinle, F. W., Jr.	41-Aero Engr
Collins, F.		
Reddy, K. C.		

NSG 3224 University of Tennessee - Knoxville 3844
Parametric study of potential early commercial power plants (MHD)

Period	Obligations	
11/01/78-04/30/80	FY80:	TOTAL: \$150,000
Prin Invest	NASA Tech Officer	CASE Category
Dicks, J. B.	LERC/Staiger, P. J.	49-Engr, NEC
Chapman, J. N.		
Markant, H. P.		

NSG 3287 University of Tennessee - Knoxville 3845
Internal computational fluid mechanics program for turbomachinery

Period	Obligations	
07/01/79-06/31/81	FY80: \$55,000	TOTAL: \$148,440
Prin Invest	NASA Tech Officer	CASE Category
Kurosaka, M.	LARC/Siegel, R.	41-Aero Engr
Wu, J. M.		
Caruthers, J. E.		

NSG 7413 University of Tennessee - Knoxville 3846
Petrologic studies of meteorite groups

Period	Obligations	
02/01/78-01/31/81	FY80: \$24,197	TOTAL: \$69,383
Prin Invest	NASA Tech Officer	CASE Category
McSween, H. Y.	HD-SL/Frerch, B. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	

NAS 9-15670 University of Tennessee - Memphis 3847
Relative toxicity testing of spacecraft materials

Period	Obligations	
11/10/78-11/09/80	FY80:	TOTAL: \$77,823
Prin Invest	NASA Tech Officer	CASE Category
Autian, J.	JSC/Schneider, H. J.	56-Medical Sciences
Lawrence, W. H.		

**NASA'S UNIVERSITY PROGRAM
TENNESSEE (Continued)**

NAS 8-32695 **Vanderbilt University** **3848**
Solar radiation on glasses
Period *Obligations*
06/27/78-10/31/80 **FY80:** **TOTAL: \$49,799**
Prin Invest *NASA Tech Officer* *CASE Category*
Kinser, D. L. MSFC/Nichols, R. L. 47-Materials Engr
MSFC/King, H. M.

NAS 9-13737 **Baylor College of Medicine** **3854**
Analysis of body calcium
Period *Obligations*
02/01/74-04/01/81 **FY80:** **TOTAL: \$316,304**
Prin Invest *NASA Tech Officer* *CASE Category*
Suki, W. JSC/Altchuler, S. I. 56-Medical Sciences

NCC 1-8 **Vanderbilt University** **3849**
Advanced solar energy conversion
Period *Obligations*
05/01/79-08/31/81 **FY80: \$72,823** **TOTAL: \$139,648**
Prin Invest *NASA Tech Officer* *CASE Category*
Lee, J. H. LARC/Jalufka, N. W. 13-Physics

NAS 9-14407 **Baylor College of Medicine** **3855**
Evaluate primary irritancy and allergenicity of materials proposed for crew apparel
Period *Obligations*
09/19/74-09/30/80 **FY80:** **TOTAL: \$20,978**
Prin Invest *NASA Tech Officer* *CASE Category*
Duncan, W. C. JSC/Rippstein, W. J. 56-Medical Sciences

NSG 7343 **Vanderbilt University** **3850**
Ultraviolet studies of galaxies
Period *Obligations*
05/01/77-06/30/80 **FY80:** **TOTAL: \$40,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Weedman, D. W. HD-SC/Weiler, E. J. 11-Astronomy

NAS 9-14546 **Baylor College of Medicine** **3856**
Etiological study of motion sickness by using subhuman primates
Period *Obligations*
05/01/75-04/30/81 **FY80: \$42,700** **TOTAL: \$217,180**
Prin Invest *NASA Tech Officer* *CASE Category*
Igarashi, M. JSC/Homick, J. L. 56-Medical Sciences

NSG 7463 **Vanderbilt University** **3851**
Ground-based photometry of HR 1099 coordinated with the October 1977 Copernicus campaign
Period *Obligations*
05/01/78-09/01/79 **FY80:** **TOTAL: \$4,193**
Prin Invest *NASA Tech Officer* *CASE Category*
Hall, D. HD-SC/Roman, N. G. 11-Astronomy
HD-SC/Rosendhal, J. D.

NAS 9-14662 **Baylor College of Medicine** **3857**
Influence of the external parameters of space flight on the regulation of blood volume
Period *Obligations*
06/01/75-06/01/81 **FY80: \$43,000** **TOTAL: \$246,420**
Prin Invest *NASA Tech Officer* *CASE Category*
Alfrey, C. JSC/Leach, C. S. 56-Medical Sciences

NSG 7543 **Vanderbilt University** **3852**
Ground-based UVB photometry of RS Canis Ventricorum binaries
Period *Obligations*
08/15/79-07/31/81 **FY80: \$28,304** **TOTAL: \$56,210**
Prin Invest *NASA Tech Officer* *CASE Category*
Hall, D. HD-SC/Weiler, E. J. 11-Astronomy
HD-SC/Boggess, N. W.

NAS 9-15457 **Baylor College of Medicine** **3858**
Early detection of disease by evaluation of the cellular immune response
Period *Obligations*
11/01/77-10/31/80 **FY80: \$98,537** **TOTAL: \$289,237**
Prin Invest *NASA Tech Officer* *CASE Category*
Criswell, B. S. JSC/Leach, C. S. 56-Medical Sciences

TEXAS

NAS 2-10354 **Baylor College of Medicine** **3853**
Cosmos 1979 experiment: Trabeculae and mineralization in the long bones
Period *Obligations*
09/01/79-12/31/80 **FY80: \$10,646** **TOTAL: \$20,646**
Prin Invest *NASA Tech Officer* *CASE Category*
Matthews, J. L. ARC/Souza, K. A. 56-Medical Sciences
Judy, M. ARC/Heinrich, M.

NAS 9-15891 **Baylor College of Medicine** **3859**
Renal responses to water immersion
Period *Obligations*
06/01/79-03/31/81 **FY80:** **TOTAL: \$32,382**
Prin Invest *NASA Tech Officer* *CASE Category*
Suki, W. JSC/Leach, C. S. 59-Life Sci, NEC

NAS 9-16029 **Baylor College of Medicine** **3860**
Life science flight experiment
Period *Obligations*
01/17/80-05/31/81 **FY80: \$10,000** **TOTAL: \$10,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Chrnswell, B. S. JSC/Thirols, R. G. 59-Life Sci, NEC

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAS 9-16040 **Baylor College of Medicine** **3861**
Life science flight experiment
Period *Obligations*
01/17/80-05/31/81 **FY80: \$19,250** **TOTAL: \$19,250**
Prin Invest *NASA Tech Officer* *CASE Category*
Martin, R. R. JSC/Thirolf, R. G. 59-Life Sci, NEC

NAS 9-16180 **Baylor College of Medicine** **3862**
Influence of space flight on erythropoietin activity and inhibition
Period *Obligations*
08/01/80-04/30/81 **FY80: \$30,000** **TOTAL: \$30,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Dunn, C. D. JSC/Leach, C. S. 56-Medical Sciences

NGR 44-095-001 **Hardin - Simmons University** **3863**
Study of psychophilic organisms isolated from manufacture and assembly areas of spacecraft to be used in the Viking missions
Period *Obligations*
08/21/72-12/31/81 **FY80: \$53,500** **TOTAL: \$497,100**
Prin Invest *NASA Tech Officer* *CASE Category*
Foster, T. L. HD-SB/Young, R. S. 51-Biological Sci
Brewer, J. H.

NSG 5421 **Houston Baptist University** **3864**
Investigation of mass flow in stellar atmospheres
Period *Obligations*
10/15/79-10/14/80 **FY80: \$4,000** **TOTAL: \$4,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Modisette, J. L. GSFC/Kondo, Y. 11-Astronomy

NSG 9038 **Houston Baptist University** **3865**
Obtaining high spatial resolution planetary imagery with potential shuttle era instrumentation
Period *Obligations*
01/01/76-01/31/81 **FY80:** **TOTAL: \$54,250**
Prin Invest *NASA Tech Officer* *CASE Category*
Morgan, T. H. JSC/Potter, A. 11-Astronomy

NSG 9076 **Houston Baptist University** **3866**
Spectroscopic investigation of the species emitting diffuse light in Johnson Space Center solar panel plasma effects simulation
Period *Obligations*
04/01/79-09/30/80 **FY80: \$7,808** **TOTAL: \$14,216**
Prin Invest *NASA Tech Officer* *CASE Category*
Warren, D. G. JSC/McCoy, J. 19-Phys Sci, NEC

NSG 9033 **Pan American University** **3867**
Experimental tests and model calculations on wheat varieties grown in India/Pakistan and in Texas
Period *Obligations*
08/28/75-11/30/80 **FY80: \$38,000** **TOTAL: \$186,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Lemaster, E. W. JSC/Heydorn, R. P. 39-Env Sci, NEC
Chance, J. E.

NSG 9070 **Pan American University** **3868**
Laboratory studies of the diffuse reflectance spectra of frosts and minerals occurring on astronomical objects
Period *Obligations*
06/01/78-05/31/81 **FY80: \$33,225** **TOTAL: \$112,025**
Prin Invest *NASA Tech Officer* *CASE Category*
Glaser, F. M. JSC/Mendell, W. 11-Astronomy

NCA 2-598001 **Prairie View A&M University** **3869**
Joint development of recruiting techniques for minority employment
Period *Obligations*
09/01/80-08/31/81 **FY80: \$2,831** **TOTAL: \$2,831**
Prin Invest *NASA Tech Officer* *CASE Category*
Jackson, B. N. ARC/White, W. L. 19-Phys Sci, NEC

NSG 9006 **Prairie View A&M University** **3870**
Measurement of growth morphological and bi-directional scattering parameters of wheat
Period *Obligations*
06/01/74-08/31/80 **FY80:** **TOTAL: \$177,019**
Prin Invest *NASA Tech Officer* *CASE Category*
Brams, E. A. JSC/Browne, I. D. 39-Env Sci, NEC

NAG 3-29 **Rice University** **3871**
A study of solar energy radio frequency generation devices
Period *Obligations*
03/01/80-02/28/81 **FY80: \$65,175** **TOTAL: \$65,175**
Prin Invest *NASA Tech Officer* *CASE Category*
Freeman, J. W. LERC/Kosmahl, H. G. 19-Phys Sci, NEC
Brotzen, F. R.

NAG 6-5 **Rice University** **3872**
Study of plasma interactions in the auroral ionosphere
Period *Obligations*
07/01/80-07/31/81 **FY80: \$122,332** **TOTAL: \$122,332**
Prin Invest *NASA Tech Officer* *CASE Category*
Anderson, H. R. WFC/Early, L. J. 19-Phys Sci, NEC
WFC/Pless, R. H.

NAGW 69 **Rice University** **3873**
Electron beam-plasma interactions in the laboratory and in the ionosphere
Period *Obligations*
06/01/80-05/31/81 **FY80: \$57,000** **TOTAL: \$57,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Bernstein, W. HD-ST/Hedin, A. E. 19-Phys Sci, NEC
HD-ST/Schmerling, E. R.

NAS 2-10519		Rice University	3874
Life science experiment, ARC 781-288, adaptive characteristics of enzymes of nitrogen metabolism in mammals during space-flight			
Period	Obligations		
01/17/80-04/30/81	FY80: \$11,358	TOTAL: \$11,358	
From Invest	NASA Tech Officer	NASA Category	
Campbell, J.	ARC/Ferandin, J.	51-Biological Sci	
Vorhaben, J E	ARC/Sebesta, P D.		

NAS 5-25032	Rice University	3876
Data analysis support for	Low Energy Gamma-ray Spectrometer	
(LEGS) balloon program		
<i>Period</i>	<i>Obligations</i>	
05/04/78-07/05/81	FY80: \$4,089	TOTAL \$16,704
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Haymes, R. C	GSFC/Teggarden, B	31-Atmos Sci

Period	Obligation
07/23/69-12/31/79	FY80 TOTAL \$2,219,059
From Invest	NASA Tech Officer C USE Category
Anderson, H R	WFC/Gray, J. W 11-Astronomy
Cloutier, P A	WFC/Pless, R. H
Pulliam, D M	

NAS 8-33023		Rice University	3878
Study for the electrostatic protection of the solar power satellite and rectenna			
Period	Obligations		
06/15/78-06/30/80	FY80	TOTAL	\$157,718
Prin Invest	NASA Tech Officer	CASF Category	
Few, A. A.	MSFC/Guttman, C	49-Engr, NEC	
Freeman, J. W.	MSFC/Johnson, W. G.		

NAS 8-33199	Rice University	3879
Measurement of high temperature properties of liquid and solid tungsten		
Period	Obligations	
11/27/78-03/31/81	FY80: \$14,000	TOTAL: \$34,000
From Invert	NAS Tech Officer	CASF Category
Margrave, J	MSFC/Berge, R.	47-Materials Engr
	MSFC/Fallon, R. A	

NAS 8-33361	Rice University	3880
Correlative studies of cosmic gamma ray sources under the HEAO-A guest investigator program		
<i>Period</i>		<i>(Obligations)</i>
07/16/79-07/15/81	FY80:	TOTAL: \$13,651
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Haynes, R. C.	MSFC/Jones, J. B.	11-Astronomy
Meegan, C. A.		

NAS 8-33715	Rice University	3881
Science and application team for the lightning observation from space development program		
<i>Period</i>	<i>Obligations</i>	
01/24/80-01/23/81	FY80: \$37,734	TOTAL: \$37,734
<i>Prime Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Few, A. A.	MSFC/Vaughan, W. W.	31-Atmos Sci
	MSFC/Smith, R. E.	

NAS 8-33771	Rice University	3882
Theoretical and experimental study of beam plasma physics		
<i>Period</i>	<i>Obligations</i>	
07/25/80-08/24/81	FY80: \$249,910	TOTAL: \$249,910
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, H. R	MSFC/Talley, D. H.	13-Physics

NAS 9-15630	Rice University	3883
Trace contaminant coadsorption by charcoal		
Period	Obligations	
07/01/78-06/15/81	FY80 \$8,538	TOTAL \$26,038
Prin Invest	NASA Tech Officer	CASE Category
DAVIS, S. H.	JSC/Lin, C. H.	43-Chem Engr

NAS 9-15940	Rice University	3884
Spectral analysis of galactic and extragalactic supernova remnants		
<i>Period</i>	<i>Obligation</i>	
05/15/79-06/15/81	FY80: \$17,000	TOTAL: \$30,360
<i>Prime Invest</i>	<i>NASA Tech Officer</i>	<i>CASI Category</i>
Dufour, R J	JSC/Parker, R A	11-Astronomy

NAS 9-16166		Rice University	3885
Geosynchronous Earth Orbit (GEO) simulation study			
Period	Obligations		
05/16/80-01/15/81	FY80: \$10,000	TOTAL: \$10,000	
Prin Invest	NSA Tech Officer	CASF Category	
Berstein, W	JSC/McIntyre, B.	19-Phys Sci, NRC	

Period	Obligations	
08/01/80-01/31/81	FY80 \$12,000	TOTAL: \$12,000
Pin Invest	NASA Tech Officer	C&SF Category
Freeman, J. W.	JSC/McCoy, J.	19-Phys Sci, NRC

NASA'S UNIVERSITY PROGRAM TEXAS (Continued)

NASW 3164 **Rice University** **3887**
Effects of hypogravity on respiration and photosynthesis of higher plants
Period *Obligations*
05/12/78-05/12/80 **FY80:** **TOTAL: \$20,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Ward, C. H. HD-SB/Halstead, T. W. 51-Biological Sci

NGL 44-006-012 **Rice University** **3888**
Laboratory development of solar wind heavy-ion mass spectrometer
Period *Obligations*
06/27/64-06/30/80 **FY80:** **TOTAL: \$1,453,736**
Prin Invest *NASA Tech Officer* *CASE Category*
Michel, F. C. HD-ST/Cauffman, D. P. 13-Physics
HD-ST/Schmerling, E. R.

NGL 44-006-127 **Rice University** **3889**
Lunar fines, their origin, evolution, and interaction with solar wind and cosmic rays
Period *Obligations*
02/16/71-01/31/81 **FY80: \$30,000** **TOTAL: \$592,149**
Prin Invest *NASA Tech Officer* *CASE Category*
Ling, A. C. JSC/Harris, J. W. 32-Geological Sci
Holloway, J. G.

NGR 44-006-137 **Rice University** **3890**
Analysis of data on the magnetotail and solar wind
Period *Obligations*
12/29/70-12/31/80 **FY80: \$89,330** **TOTAL: \$397,027**
Prin Invest *NASA Tech Officer* *CASE Category*
Dessler, A. J. HD-ST/Schmerling, E. R. 13-Physics

NGT 44-006-800 **Rice University** **3891**
Zonal wind dynamics in the atmospheres of Jupiter and Saturn from Voyager IRIS measurements graduate student researchers program
Period *Obligations*
09/01/80-08/31/81 **FY80: \$10,000** **TOTAL: \$10,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Chamberlain, J. W. GSFC/Mumma, M. J. 13-Physics

NSG 5286 **Rice University** **3892**
Investigation of low altitude plasma phenomena
Period *Obligations*
07/01/78-12/31/80 **FY80: \$21,000** **TOTAL: \$41,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Reiff, P. H. GSFC/Spencer, N. W. 31-Atmos Sci

NSG 5364 **Rice University** **3893**
Observations of the ultraviolet spectra of magellanic clouds
Period *Obligations*
06/01/79-05/31/81 **FY80: \$13,874** **TOTAL: \$24,874**
Prin Invest *NASA Tech Officer* *CASE Category*
Dufour, R. J. GSFC/Bogges, A. 11-Astronomy
Talbot, R. J.
Shields, G. A.

NSG 7032 **Rice University** **3894**
Apollo data synthesis: Lunar atmosphere and ionosphere
Period *Obligations*
04/01/74-02/28/81 **FY80:** **TOTAL: \$90,307**
Prin Invest *NASA Tech Officer* *CASE Category*
Michel, F. C. HD-SL/Quaide, W. L. 31-Atmos Sci
HD-SL/French, B. E.

NSG 7043 **Rice University** **3895**
Research on planetary atmospheres
Period *Obligations*
03/01/74-02/28/81 **FY80: \$72,023** **TOTAL: \$312,640**
Prin Invest *NASA Tech Officer* *CASE Category*
Chamberlain, J. W. HD-SL/Murphy, R. E. 31-Atmos Sci

NSG 7157 **Rice University** **3896**
Analysis and synthesis of Apollo lunar surface experiments package suprathermal ion
Period *Obligations*
07/01/75-10/31/79 **FY80:** **TOTAL: \$199,715**
Prin Invest *NASA Tech Officer* *CASE Category*
Freeman, J. W. HD-ST/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NSG 7361 **Rice University** **3897**
Origin of the solar system: The relationship of isotopic and chemical anomalies in meteorites, Earth, Moon and planets to astrophysical models of their origin
Period *Obligations*
08/01/77-04/30/81 **FY80:** **TOTAL: \$36,190**
Prin Invest *NASA Tech Officer* *CASE Category*
Clayton, D. D. HD-SL/Quaide, W. L. 32-Geological Sci

NSG 7362 **Rice University** **3898**
Thermal history of the inner planets
Period *Obligations*
07/01/77-12/31/79 **FY80:** **TOTAL: \$60,357**
Prin Invest *NASA Tech Officer* *CASE Category*
Debremaecker, J. C. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NSG 7386 **Rice University** **3899**
Study of ion-molecule reactions of importance in planetary atmosphere
Period *Obligations*
09/01/77-12/31/80 **FY80: \$46,414** **TOTAL: \$103,382**
Prin Invest *NASA Tech Officer* *CASE Category*
Chamberlain, J. W. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NAS 9-16140 **Southern Methodist University** **3900**
Proposed work on the OSTA, Rio Grand rift project
Period *Obligations*
06/24/80-04/30/81 **FY80: \$9,994** **TOTAL: \$9,994**
Prin Invest *NASA Tech Officer* *CASE Category*
Dungan, M. A. JSC/Blanchard, D. P. 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NGT 44-007-800 Southern Methodist University **3901**
Graduate student researchers program
Period Obligations
06/01/80-05/31/81 FY80: \$8,325 TOTAL: \$8,325
Prin Invest NASA Tech Officer CASE Category
Dungan, M. JSC/Lofgren, G. 32-Geological Sci

NSG 2354 Southern Methodist University **3902**
Experimental measurements of unsteady turbulent boundary layers near separation
Period Obligations
12/01/78-06/30/81 FY80: TOTAL: \$127,397
Prin Invest NASA Tech Officer CASE Category
Simpson, R. L. ARC/Marvin, J. G. 42-Astro Engr
Nasburg, R. E.

NAS 9-15102 Texas A&M University **3903**
Development of synthetic aperture radar design approach for wide-swath implementation
Period Obligations
04/01/80-06/01/81 FY80: \$35,000 TOTAL: \$35,000
Prin Invest NASA Tech Officer CASE Category
Jean, B. R. JSC/Krishen, K. 31-Atmos Sci

NAG 2-25 Texas A&M University System Office **3904**
Airframe/propeller propulsion integration analyses
Period Obligations
05/01/80-04/31/81 FY80: \$59,363 TOTAL: \$59,363
Prin Invest NASA Tech Officer CASE Category
Miley, S. J. ARC/Enomoto, F. Y. 41-Aero Engr
ARC/Williams, L. J.

NAG 1-11 Texas A&M University **3905**
Analytical study of jet shielding
Period Obligations
01/01/80-12/31/80 FY80: \$37,765 TOTAL: \$37,765
Prin Invest NASA Tech Officer CASE Category
Gerhold, C. H. LARC/Zorumski, W. E. 41-Aero Engr

NAG 3-31 Texas A&M University **3906**
Constitutive models for cyclic plasticity and creep behavior of super alloys at high temperature
Period Obligations
04/01/80-03/31/81 FY80: \$45,000 TOTAL: \$45,000
Prin Invest NASA Tech Officer CASE Category
Haister, W. E. LERC/Thompson, R. L.
Bradley, W. L. 47-Materials Engr

NAG 5-31 Texas A&M University **3907**
Investigation of remote sensing techniques for measuring soil moisture
Period Obligations
03/01/80-12/31/80 FY80: \$145,000 TOTAL: \$145,000
Prin Invest NASA Tech Officer CASE Category
Newton, R. W. GSFC/Schmugge, T. J. 32-Geological Sci

NAG 5-94 Texas A&M University **3908**
Research of altimetry data over trenches and island arcs and convection
Period Obligations
09/01/80-08/31/81 FY80: \$12,645 TOTAL: \$ 2,645
Prin Invest NASA Tech Officer CASE Category
Jones, G. M. GSFC/Harper, E. L. 32-Geological Sci
GSFC/Smith, D. E.

NAS 2-10272 Texas A&M University **3909**
Modification of a Swearingen metro wind tunnel model
Period Obligations
06/19/79-02/28/81 FY80: \$177,825 TOTAL: \$264,225
Prin Invest NASA Tech Officer CASE Category
Brusse, J. C. ARC/Morgan, D. 41-Aero Engr

NAS 5-22966 Texas A&M University **3910**
Nimbus-G experiment team for coastal zone color scanner
Period Obligations
02/10/76-01/31/81 FY80: \$20,000 TOTAL: \$343,226
Prin Invest NASA Tech Officer CASE Category
El-sayed, S. Z. GSFC/Nelsen, E. D. 41-Aero Engr

NAS 5-24383 Texas A&M University **3911**
Applications of heat capacity mapping mission satellite data to the study of urban heating patterns
Period Obligations
01/16/78-02/01/81 FY80: \$28,294 TOTAL: \$115,384
Prin Invest NASA Tech Officer CASE Category
Harlan, J. C. GSFC/Stonesifer, G. R. 19-Phys Sci, NEC

NAS 5-25846 Texas A&M University **3912**
Resolving the agricultural residential image classification conflict
Period Obligations
09/04/79-09/03/80 FY80: TOTAL: \$4,000
Prin Invest NASA Tech Officer CASE Category
Miller, L. GSFC/Toll, D. 32-Geological Sci

NAS 5-25941 Texas A&M University **3913**
Documentation of LANDSAT assessment of forest land cover in northern Thailand
Period Obligations
11/19/79-09/19/80 FY80: \$3,960 TOTAL: \$3,960
Prin Invest NASA Tech Officer CASE Category
Miller, L. GSFC/Williams, D. L. 39-Env Sci, NEC

NAS 6-2884 Texas A&M University **3914**
Study of the dynamics of ocean surface current and Kuroshio circulation
Period Obligations
02/01/78-03/31/81 FY80: TOTAL: \$34,199
Prin Invest NASA Tech Officer CASE Category
Ichiye, T. WFC/Huang, N. E. 33-Oceanography
WFC/Long, S.

NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)

NAS 6-3072 **Texas A&M University** **3915**
Development of a unified thermal and trajectory model for the
prediction of high-altitude balloon performance
Period *Obligations*
02/01/80-12/31/80 FY80: \$49,451 TOTAL: \$49,451
Prin Invest *NASA Tech Officer* *CASE Category*
Carlson, L. A. WFC/Needleman, H. C. 41-Aero Engr
Horn, W. J. WFC/Early, L. J.

NAS 9-13894 **Texas A&M University** **3921**
Classification techniques evaluation and yield modeling for a large
crop inventory project
Period *Obligations*
01/15/74-11/17/80 FY80: \$38,470 TOTAL: \$510,312
Prin Invest *NASA Tech Officer* *CASE Category*
Sielken, R. L. JSC/Broune, I. D. 22-Computer Science
Jenkins, O. C.
Freund, R. J.

NAS 8-31773 **Texas A&M University** **3916**
The relationship between severe storms and their environment
Period *Obligations*
01/02/76-01/31/81 FY80: \$125,000 TOTAL: \$351,981
Prin Invest *NASA Tech Officer* *CASE Category*
Scoggins, J. R. MSFC/Hill, C. K. 31-Atmos Sci
MSFC/Vaughn, W. W.

NAS 9-14689 **Texas A&M University** **3922**
Application of feature selection
Period *Obligations*
06/01/75-10/31/80 FY80: \$135,018 TOTAL: \$401,218
Prin Invest *NASA Tech Officer* *CASE Category*
Guseman, L. F. JSC/Browne, I. D. 22-Computer Science

NAS 8-32527 **Texas A&M University** **3917**
Bent crystal X-ray topography
Period *Obligations*
07/13/77-09/30/78 FY80: TOTAL: \$39,954
Prin Invest *NASA Tech Officer* *CASE Category*
Parker, D. L. MSFC/Nowakowski, M. 13-Physics
MSFC/Holladay, A. M.

NAS 9-14828 **Texas A&M University** **3923**
Lunar sample irradiation services
Period *Obligations*
11/01/75-08/31/80 FY80: TOTAL: \$60,000
Prin Invest *NASA Tech Officer* *CASE Category*
Randall, J. D. JSC/Blanchard, D. P. 39-Env Sci, NEC

NAS 8-33519 **Texas A&M University** **3918**
X-ray topography study of complex silicone microcircuits
Period *Obligations*
02/12/80-02/11/81 FY80: \$29,912 TOTAL: \$29,912
Prin Invest *NASA Tech Officer* *CASE Category*
Parker, P. L. MSFC/Nowakowski, M. 45-Elec Engr
MSFC/Holladay, A. M.

NAS 9-15311 **Texas A&M University** **3924**
Investigation of microprocessor systems to be used in the
development of a 4.75 GHz scatterometer real-time processor
Period *Obligations*
05/11/77-07/16/80 FY80: TOTAL: \$119,253
Prin Invest *NASA Tech Officer* *CASE Category*
Jean, B. R. JSC/Farris, G. W. 45-Elec Engr

NAS 8-33716 **Texas A&M University** **3919**
Space shuttle main engine fuel turbopump interstage seal test
program
Period *Obligations*
02/29/80-02/28/81 FY80: \$268,447 TOTAL: \$268,447
Prin Invest *NASA Tech Officer* *CASE Category*
Childs, D. W. MSFC/Garcia, F. F. 46-Mech Engr
MSFC/Gross, L. P.

NAS 9-15451 **Texas A&M University** **3925**
Microwave remote sensing symposium workshop
Period *Obligations*
10/12/77-10/31/78 FY80: TOTAL: \$64,721
Prin Invest *NASA Tech Officer* *CASE Category*
Rouse, J. W. JSC/Matthews, R. E. 13-Physics

NAS 8-33776 **Texas A&M University** **3920**
Diagnostic analysis of the environment of severe storms using
atmospheric variability
Period *Obligations*
02/12/80-02/11/81 FY80: \$39,398 TOTAL: \$39,398
Prin Invest *NASA Tech Officer* *CASE Category*
Scoggins, J. R. MSFC/Hill, C. K. 31-Atmos Sci

NAS 9-15468 **Texas A&M University** **3926**
Development of map products on state of rangelands
Period *Obligations*
12/05/77-01/15/81 FY80: \$49,350 TOTAL: \$114,098
Prin Invest *NASA Tech Officer* *CASE Category*
Harlan, J. C. JSC/Hancock, K. J. 99-Multi-Discip

NAS 9-15964 **Texas A&M University** **3927**
Basic research planning in pattern recognition image processing
Period *Obligations*
09/06/79-01/15/81 FY80: \$57,140 TOTAL: \$57,140
Prin Invest *NASA Tech Officer* *CASE Category*
Guseman, L. F. JSC/MacDonald, R. B. 32-Geological Sci
Bryant, J.

NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)

NAS 9-16059 **Texas A&M University** **3928**
Administrative support for the Solar Power Satellite Concept
Evaluation Resource Analysis Workshop
Period *Obligations*
01/30/80-04/30/80 FY80: \$77,298 TOTAL: \$77,298
Pnn Invest *NASA Tech Officer* *CASE Category*
Thomas, R. E. JSC/Kennedy, R. 13-Physics

NAS 9-16073 **Texas A&M University** **3929**
Study to develop a factor analysis statistical capability for the
design performance laboratory
Period *Obligations*
04/01/80-01/15/81 FY80: \$5,000 TOTAL \$5,000
Pnn Invest *NASA Tech Officer* *CASE Category*
Stramler, J. H. JSC/Lewis, J. L. 51-Biological Sci

NAS 9-16088 **Texas A&M University** **3930**
Application of ray-tracing techniques for evaluating effects of
ionospheric disturbances and spacenna structural distortions
and/or tilts on the solar power satellite pilot beam signal
Period *Obligations*
04/16/80-01/15/81 FY80: \$5,230 TOTAL: \$5,230
Pnn Invest *NASA Tech Officer* *CASE Category*
Marouf, A. JSC/Arndt, G. D. 45-Elec Engr

NAS 9-16185 **Texas A&M University** **3931**
Chemical analysis of Martian analog samples
Period *Obligations*
08/01/80-07/31/81 FY80 \$2,000 TOTAL \$2,000
Pnn Invest *NASA Tech Officer* *CASE Category*
Young, V. JSC/Gibson, E. K. 12-Chemistry

NCC 2-78 **Texas A&M University** **3932**
Studies of advanced wing configurations
Period *Obligations*
06/01/80-05/30/81 FY80 \$77,810 TOTAL: \$77,810
Pnn Invest *NASA Tech Officer* *CASE Category*
Chevalier, H ARC/Corsiglia, V. R 41-Aero Engr

NCC 5-11 **Texas A&M University** **3933**
Altimeter data over trenches and island arcs and convection in
the mantle
Period *Obligations*
05/01/79-08/31/80 FY80 TOTAL \$25,000
Pnn Invest *NASA Tech Officer* *CASE Category*
Jones, G. M GSFC/Taylor, P. T 32-Geological Sci

NCC 5-15 **Texas A&M University** **3934**
Determination of the spatial variability in localized precipitation
patterns
Period *Obligations*
06/01/79-11/30/80 FY80 TOTAL: \$25,478
Pnn Invest *NASA Tech Officer* *CASE Category*
Miller, L. GSFC/Schmugge, T. J 39-Env Sci, NEC
Blanchard, B. J

NGL 44-001-001 **Texas A&M University** **3935**
Interdisciplinary space oriented research in physical, life and
engineering sciences
Period *Obligations*
02/01/62-01/31/81 FY80: TOTAL: \$1,915,564
Pnn Invest *NASA Tech Officer* *CASE Category*
Blanchard, B. J. HD-ET/Vitale, J. A. 39-Env Sci, NEC

NGR 44-001-117 **Texas A&M University** **3936**
Radiative transfer in realistic planetary atmospheres
Period *Obligations*
07/19/71-09/30/80 FY80: \$25,435 TOTAL: \$333,955
Pnn Invest *NASA Tech Officer* *CASE Category*
Kattawar, G. W. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NGT 44-001-800 **Texas A&M University** **3937**
Summer faculty fellowship program in engineering systems
design
Period *Obligations*
01/01/80-03/31/81 FY80: \$182,963 TOTAL \$182,963
Pnn Invest *NASA Tech Officer* *CASE Category*
Norton, D. J. HD-LU/Carter, C. H 49-Engr, NEC

NGT 44-001-801 **Texas A&M University** **3938**
Shearing of atmospherically driven nearshore dynamics
Period *Obligations*
09/01/80-08/31/81 FY80: \$9,325 TOTAL: \$9,325
Pnn Invest *NASA Tech Officer* *CASE Category*
McGrail, D. W. JPL/Chahine, M. 32-Geological Sci

NSG 1174 **Texas A&M University** **3939**
Development of inverse transonic airfoil design methods including
boundary layer and viscous interaction effects
Period *Obligations*
05/01/75-01/31/81 FY80: \$33,962 TOTAL \$103,789
Pnn Invest *NASA Tech Officer* *CASE Category*
Carlson, L. A. LARC/Everhart, J. L. 41-Aero Engr
LARC/South, J. C.

NSG 1374 **Texas A&M University** **3940**
Low cost avionics for the global positioning system
Period *Obligations*
01/15/77-10/14/79 FY80 TOTAL \$46,504
Pnn Invest *NASA Tech Officer* *CASE Category*
Painter, J. H. LARC/Lytle, C. D 45-Elec Engr
Noe, P. S. LARC/Hearn, C. P.
Rhync, V. T

NSG 1407 **Texas A&M University** **3941**
Investigation of the aerodynamics for preventing aircraft stall
and the development of technology for stall proof general aviation
aircraft
Period *Obligations*
04/01/77-04/30/80 FY80 TOTAL \$96,033
Pnn Invest *NASA Tech Officer* *CASE Category*
Chevalier, H LARC/Chambers, J. R. 41-Aero Engr
LARC/Johnson, J. L.

NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)

NSG 1639			
Texas A&M University		3942	
Design studies for a technology assessment receiver for the global positioning system			
Period	Obligations		
09/01/79-05/31/81	FY80:	TOTAL: \$39,991	
Prin Invest	NASA Tech Officer	CASE Category	
Painter, J. H.	LARC/Hearn, C. P.	45-Elec Engr	
Noe, P. S.	LARC/Lytle, C. D.		
Rhyne, V. T.			
NSG 2226			
Texas A&M University		3943	
Applicability of reliability and survivability program-version I to model reliability and survivability characteristics of aircraft weapon systems			
Period	Obligations		
05/01/77-01/01/81	FY80: \$20,428	TOTAL: \$59,768	
Prin Invest	NASA Tech Officer	CASE Category	
Phillips, D. T.	ARC/Andre, W. L.	41-Aero Engr	
Foster, J. W.	ARC/Wong, J. T.		
NSG 3201			
Texas A&M University		3944	
Theoretical calculations relevant to hydrogen storage			
Period	Obligations		
06/15/78-02/15/80	FY80:	TOTAL: \$4,000	
Prin Invest	NASA Tech Officer	CASE Category	
Ford, A. L.	LERC/Brown, G. V.	13-Physics	
NSG 5134			
Texas A&M University		3945	
Measurement of soil moisture trends with airborne scatterometers			
Period	Obligations		
10/11/76-03/31/81	FY80: \$102,036	TOTAL: \$227,036	
Prin Invest	NASA Tech Officer	CASE Category	
Blanchard, B. J.	GSFC/Chang, A. T.	32-Geological Sci	
NSG 5156			
Texas A&M University		3946	
Measurement of the hydrologic soil-cover complex with airborne scatterometers			
Period	Obligations		
02/01/77-09/30/79	FY80:	TOTAL: \$79,085	
Prin Invest	NASA Tech Officer	CASE Category	
Blanchard, B. J.	GSFC/Chang, A. T.	32-Geological Sci	
NSG 5193			
Texas A&M University		3947	
Temporal correlations of antecedent precipitation with Nimbus-5 electrically scanning microwave radiometer brightness temperatures			
Period	Obligations		
08/01/77-11/30/80	FY80:	TOTAL: \$88,259	
Prin Invest	NASA Tech Officer	CASE Category	
McFarland, M. J.	GSFC/Schmugge, T. J.	31-Atmos Sci	
Blanchard, B. J.			
NSG 5266			
Texas A&M University		3948	
Research of mathematical model of an orbiting microwave radiometer			
Period	Obligations		
04/01/78-12/31/79	FY80:	TOTAL: \$60,302	
Prin Invest	NASA Tech Officer	CASE Category	
Newton, R. W.	GSFC/Wang, J. R.	39-Env Sci, NEC	
Rouse, J. W.			
NSG 7037			
Texas A&M University		3949	
The origin of the genetic code: A physical chemical model of Codon assignment			
Period	Obligations		
05/07/74-07/31/80	FY80: \$4,221	TOTAL: \$264,196	
Prin Invest	NASA Tech Officer	CASE Category	
Nagvary, J.	HD-SB/Devincenzi, D. L.	12-Chemistry	
NSG 7417			
Texas A&M University		3950	
Velocity model of the shallow lunar crust			
Period	Obligations		
03/01/78-12/31/79	FY80:	TOTAL: \$21,550	
Prin Invest	NASA Tech Officer	CASE Category	
Gangi, A. F.	HD-SL/Quaide, W. L.	32-Geological Sci	
	HD-SL/French, B. E.		
NAG 1-22			
Texas Christian University		3951	
Effects of aircraft noise on human activities			
Period	Obligations		
01/01/80-05/31/81	FY80: \$35,480	TOTAL: \$35,480	
Prin Invest	NASA Tech Officer	CASE Category	
Arnault, M. D.	LARC/Powell, C. A.	69-Psych, NEC	
	LARC/Key, K. F.		
NAG 9-6			
Texas Southern University		3952	
Space flight design and developmental studies			
Period	Obligations		
12/01/79-12/31/80	FY80: \$175,549	TOTAL: \$175,549	
Prin Invest	NASA Tech Officer	CASE Category	
Blackwell, H. E.	JSC/Davis, E. L.	49-Engr, NEC	
NAG 1-28			
Texas Tech University		3953	
Lightning sensors and data interpretation			
Period	Obligations		
01/15/80-01/14/81	FY80: \$50,000	TOTAL: \$50,000	
Prin Invest	NASA Tech Officer	CASE Category	
Trost, T. F.	LARC/Zaeffel, K. P.	45-Elec Engr	
	LARC/Pitts, F. L.		
NAS 9-11162			
Texas Tech University		3954	
Insulated ECG electrodes			
Period	Obligations		
06/29/70-02/01/81	FY80:	TOTAL: \$134,892	
Prin Invest	NASA Tech Officer	CASE Category	
Portnoy, W. M.	JSC/Day, J. L.	45-Elec Engr	

NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)

NAS 9-16155 **Texas Tech University** **3955**
Support for static and dynamic anthropometry for computer stimulation of man in a zero-G environment
Period *Obligations*
06/01/80-10/30/80 FY80: \$1,380 TOTAL: \$1,380
Prin Invest *NASA Tech Officer* *CASE Category*
Ayoub, M. M. JSC/Jackson, J. T. 59-Life Sci, NEC

NGT 44-011-800 **Texas Tech University** **3956**
Equilibrium deprivation and its effects on the nervous system
Period *Obligations*
06/15/80-06/14/81 FY80: \$10,445 TOTAL: \$10,445
Prin Invest *NASA Tech Officer* *CASE Category*
Hartman, H. B. ARC/Holton, E. M. 51-Biological Sci

NSG 2137 **Texas Tech University** **3957**
Pharmacological prevention of calcium and bone loss
Period *Obligations*
05/01/76-04/30/81 FY80: \$10,000 TOTAL: \$48,000
Prin Invest *NASA Tech Officer* *CASE Category*
Kenny, A. D. ARC/Holton, E. M. 56-Medical Sciences

NSG 7435 **Texas Tech University** **3958**
Application of laser ranging and very long base interferometry data to a study of plate tectonic driving forces
Period *Obligations*
05/01/78-04/30/81 FY80: \$32,852 TOTAL: \$70,488
Prin Invest *NASA Tech Officer* *CASE Category*
Hartman, H. B. HD-SB/Halstead, T. W. 32-Geological Sci

NAGW 39 **University of Houston - Houston** **3959**
Granule armor on sand dunes
Period *Obligations*
03/01/80-02/28/81 FY80: \$11,268 TOTAL: \$11,268
Prin Invest *NASA Tech Officer* *CASE Category*
Smith, R. S. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NAS 2-10087 **University of Houston - Houston** **3960**
Influence of weightlessness on lignification in developing plant seedlings
Period *Obligations*
11/01/78-12/31/80 FY80: \$73,450 TOTAL: \$122,030
Prin Invest *NASA Tech Officer* *CASE Category*
Cowles, J. R. ARC/Tremor, J. W. 59-Life Sci, NEC
Scheld, H. W.

NAS 9-11676 **University of Houston - Houston** **3961**
Characterization of heat transfer in nutrient materials
Period *Obligations*
04/28/71 03/01/81 FY80: TOTAL: \$99,948
Prin Invest *NASA Tech Officer* *CASE Category*
Cox, J. E. JSC/Sauer, R. L. 59-Life Sci, NEC

NAS 9-15882 **University of Houston - Houston** **3962**
Analysis of volatile metabolites in biological fluids as indicators of prodromal disease conditions
Period *Obligations*
06/01/79-09/30/81 FY80: \$30,000 TOTAL: \$79,948
Prin Invest *NASA Tech Officer* *CASE Category*
Zlatkis, A. JSC/Schneider, H. J. 51-Biological Sci

NAS 9-15944 **University of Houston - Houston** **3963**
Design of a food service habitat for a large scale space station
Period *Obligations*
08/23/79-09/20/81 FY80: TOTAL: \$15,000
Prin Invest *NASA Tech Officer* *CASE Category*
Bell, L. JSC/Smith, M. C. 99-Multi-Discip

NGR 44-005-002 **University of Houston - Houston** **3964**
Studies in organic cosmochemistry, including consideration of compound formation under primitive Earth conditions and of organic material in selected meteorites
Period *Obligations*
06/18/62-08/31/81 FY80: \$115,000 TOTAL: \$1,144,905
Prin Invest *NASA Tech Officer* *CASE Category*
Oro, J. HD-SB/Devincenzi, D. L. 32-Geological Sci

NGT 44-005-115 **University of Houston - Houston** **3965**
Summer faculty fellowship program in research
Period *Obligations*
05/06/74-03/31/81 FY80: TOTAL: \$1,265,089
Prin Invest *NASA Tech Officer* *CASE Category*
Huang, C. J. HD-LU/Carter, C. H. 49-Engr, NEC

NGT 44-005-800 **University of Houston - Houston** **3966**
Graduate student researchers program
Period *Obligations*
09/01/80-08/31/81 FY80: \$11,000 TOTAL: \$11,000
Prin Invest *NASA Tech Officer* *CASE Category*
Middleditch, B. S. JSC/Schneider, H. J. 19-Phys Sci, NEC

NSG 1475 **University of Houston - Houston** **3967**
The large-scale coherent structure in the circular jet
Period *Obligations*
12/01/77-11/30/81 FY80: \$40,000 TOTAL: \$110,000
Prin Invest *NASA Tech Officer* *CASE Category*
Nadkarni, A. A. LARC/Maestrello, L. 41-Aero Engr

NSG 1603 **University of Houston - Houston** **3968**
Research on the application of a decoupling algorithm for structural analysis
Period *Obligations*
03/15/79-03/14/81 FY80: \$36,404 TOTAL: \$56,204
Prin Invest *NASA Tech Officer* *CASE Category*
Denman, E. D. LARC/Horner, G. C. 45-Elec Engr

NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)

NSG 2337 **University of Houston - Houston** **3969**
The high Reynolds number free shear layer (behind a backward facing step)
Period *Obligations*
09/01/78-07/31/81 **FY80: \$78,089** **TOTAL: \$221,801**
Prin Invest *NASA Tech Officer* *CASE Category*
Hussain, A. K. ARC/Viegas, J. R. 47-Materials Engr
Kleis, S. J.

NSG 7617 **University of Houston - Houston** **3975**
Investigation of multizoned chondrules and dark rim materials in ordinary and carbonaceous chondrites
Period *Obligations*
07/01/79-08/31/80 **FY80:** **TOTAL: \$24,959**
Prin Invest *NASA Tech Officer* *CASE Category*
King, E. A. HD-SL/French, B. M. 32-Geological Sci
HD-SL/Quaide, W. L.

NSG 7300 **University of Houston - Houston** **3970**
The role cell membranes in the regulation of lignification in pine cells
Period *Obligations*
10/01/76-04/30/80 **FY80:** **TOTAL: \$89,986**
Prin Invest *NASA Tech Officer* *CASE Category*
Hendrix, D. H. HD-SB/Halstead, T.W. 51-Biological Sci
HD-SB/Geib, D. S.

NSG 9042 **University of Houston - Houston** **3976**
Aromatic biosynthesis in pine tissues
Period *Obligations*
04/01/76-05/31/81 **FY80: \$30,000** **TOTAL: \$149,800**
Prin Invest *NASA Tech Officer* *CASE Category*
Coules, J. R. HD-SB/Halstead, T.W. 51-Biological Sci

NSG 7410 **University of Houston - Houston** **3971**
Wind regime of various dune types in the southeastern California desert
Period *Obligations*
11/01/77-04/30/80 **FY80:** **TOTAL: \$38,714**
Prin Invest *NASA Tech Officer* *CASE Category*
Smith, R. S. HD-SL/Dwornik, S. E. 32-Geological Sci
HD-SL/Boyce, J. M.

DEN 8-1 **University of Houston - Clear Lake** **3977**
Installation of a solar energy system
Period *Obligations*
06/14/78-12/31/80 **FY80: \$31,532** **TOTAL: \$233,174**
Prin Invest *NASA Tech Officer* *CASE Category*
Samfield, E. MSFC/Clark, J. 31-Atmos Sci

NSG 7440 **University of Houston - Houston** **3972**
Evolutionary relationships in the microbial world
Period *Obligations*
06/01/78-05/31/81 **FY80: \$48,000** **TOTAL: \$138,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Fox, G. E. HD-SB/Devincenzi, D. L. 51-Biological Sci

NAS 9-15642 **University of Houston - Clear Lake** **3978**
Development of quantitative exercise program for use in space flight
Period *Obligations*
07/17/78-08/31/80 **FY80:** **TOTAL: \$30,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Coleman, A. E. JSC/Sawin, C. F. 56-Medical Sciences

NSG 7551 **University of Houston - Houston** **3973**
Mars. Significance of large open spaces within the north polar dune fields
Period *Obligations*
04/01/79-03/31/81 **FY80: \$19,338** **TOTAL: \$24,338**
Prin Invest *NASA Tech Officer* *CASE Category*
Smith, R. HD-SL/Boyce, J. M. 32-Geological Sci

NAS 9-16136 **University of Houston - Clear Lake** **3979**
Analysis of physical exercise and exercise protocols for space transportation system operation
Period *Obligations*
09/01/80-12/31/82 **FY80: \$45,000** **TOTAL: \$45,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Coleman, A. E. JSC/Swain, C. F. 56-Medical Sciences

NSG 7609 **University of Houston - Houston** **3974**
Measure electron precipitation induced by barium injections in the magnetosphere: Flight of parachute deployed payloads during the barium GEOS experiment
Period *Obligations*
08/01/79-07/31/81 **FY80:** **TOTAL: \$42,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Sheldon, W. R. HD-ST/Schmerling, E. R. 19-Phys Sci, NEC

NSG 3255 **University of Texas - Arlington** **3980**
Generator (MHD) off-design performance with NoX chemical kinetics analysis
Period *Obligations*
03/01/79-01/14/81 **FY80: \$34,593** **TOTAL: \$58,744**
Prin Invest *NASA Tech Officer* *CASE Category*
Wilson, D. R. LERC/Smith, J. M. 49-Engr, NEC

NAG 1-79 **University of Texas - Austin** **3981**
A theoretic study of splines under tension
Period *Obligations*
06/10/80-06/09/82 **FY80: \$43,972** **TOTAL: \$43,972**
Prin Invest *NASA Tech Officer* *CASE Category*
Cline, A. K. LARC/Schiess, J. R. 22-Computer Science

NASA'S UNIVERSITY PROGRAM TEXAS (Continued)

NAG 2-5 University of Texas - Austin 3982
Finite elements and Navier-Stokes problems
Period Obligations
10/01/79-09/30/80 FY80: \$5,992 TOTAL: \$5,992
Prin Invest NASA Tech Officer CASE Category
Carey, G. F. ARC/Lasinski, T. A. 41-Aero Engr

NAG 5-80 University of Texas - Austin 3983
Abundance effects on mass loss in selected stars
Period Obligations
07/01/80-10/31/81 FY80: \$9,300 TOTAL: \$9,300
Prin Invest NASA Tech Officer CASE Category
Parsons, S. B. GSFC/Boggess, A. 11-Astronomy
Wray, J. D.
Bruhweiler, F. C.

NAG 8-350 University of Texas - Austin 3984
High Energy Astronomical Observatory-B guest investigation
search for X-rays associated with the variable far-infrared sources
in NGC 6334
Period Obligations
06/23/80-06/22/81 FY80: \$2,390 TOTAL: \$2,390
Prin Invest NASA Tech Officer CASE Category
Wheeler, J. C. MSFC/Swearingen, J. C. 11-Astronomy

NAG 9-11 University of Texas - Austin 3985
Tectonic analysis of the San Luis Basin segment of the Rio Grande
rift
Period Obligations
06/01/80-05/31/81 FY80: \$35,700 TOTAL: \$35,700
Prin Invest NASA Tech Officer CASE Category
Muehlberger, W. R. JSC/Blanchard, D. P. 32-Geological Sci

NAS 5-22576 University of Texas - Austin 3986
Communications link characterization experiment
Period Obligations
09/08/75-04/13/80 FY80: \$81,700 TOTAL: \$289,400
Prin Invest NASA Tech Officer CASE Category
Vogel, W. GSFC/Hirschmann, E. 45-Elec Engr
Staighon, A. W.

NAS 5-25656 University of Texas - Austin 3987
Space telescope/high resolution spectrograph
Period Obligations
05/09/79-01/31/82 FY80: \$6,000 TOTAL: \$10,000
Prin Invest NASA Tech Officer CASE Category
Trafton, L. M. GSFC/Liberatore, F. J. 11-Astronomy

NAS 5-25756 University of Texas - Austin 3988
Autonomous satellite navigation methods using the global
positioning satellite system
Period Obligations
07/18/79-07/17/80 FY80: \$564 TOTAL: \$40,064
Prin Invest NASA Tech Officer CASE Category
Tapley, B. D. GSFC/Fuchs, A. J. 42-Astro Engr
Schutz, B. E.

NAS 5-25898 University of Texas - Austin 3989
Satellite ranging data analysis Lageos geodynamics experiment 2
Period Obligations
11/21/79-06/21/81 FY80: \$50,000 TOTAL: \$50,000
Prin Invest NASA Tech Officer CASE Category
Shelus, P. J. GSFC/Stephanides, C. C. 32-Geological Sci

NAS 5-25948 University of Texas - Austin 3990
Operation and management of the lunar and satellite laser ranging
ground station equipment at McDonald Observatory, Texas
Period Obligations
11/15/79-09/30/81 FY80: \$973,784 TOTAL: \$973,784
Prin Invest NASA Tech Officer CASE Category
Silverberg, E. C. GSFC/White, W. W. 11-Astronomy
Shelus, P. J.

NAS 5-25991 University of Texas - Austin 3991
Solid Earth dynamics using laser geodynamics satellite range
observations
Period Obligations
12/27/79-03/26/83 FY80: \$269,000 TOTAL: \$269,000
Prin Invest NASA Tech Officer CASE Category
Tapley, B. D. GSFC/Stephanides, C. C. 19-Phys Sci, NEC

NAS 8-31459 University of Texas - Austin 3992
Analysis of ultraviolet stellar spectra obtained with Skylab
experiment S-019
Period Obligations
06/30/75-08/31/80 FY80: TOTAL: \$391,821
Prin Invest NASA Tech Officer CASE Category
Henize, K. G. MSFC/Snoddy, W. C. 11-Astronomy
Wray, J. D.

NAS 8-32905 University of Texas - Austin 3993
Scientific investigation in support of the space telescope project
Period Obligations
02/15/78-02/15/84 FY80: TOTAL: \$285,400
Prin Invest NASA Tech Officer CASE Category
Lambert, D. L. MSFC/ODell, C. R. 11-Astronomy

NAS 8-32906 University of Texas - Austin 3994
Scientific investigations in support of the space telescope project,
to assure that the space telescope will perform astrometric
functions
Period Obligations
02/01/78-02/23/84 FY80: \$300,000 TOTAL: \$700,000
Prin Invest NASA Tech Officer CASE Category
Jefferys, W. H. MSFC/ODell, C. R. 11-Astronomy

NAS 8-33980 University of Texas - Austin 3995
Multishaker model testing
Period Obligations
09/15/80-09/14/81 FY80: \$50,000 TOTAL: \$50,000
Prin Invest NASA Tech Officer CASE Category
Craig, R. C. MSFC/Kiefling, L. A. 49-Engr, NEC
MSFC/Ivey, E. W.

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAS 9-13680 University of Texas - Austin **3996**
Assessment of real gas effects on the extrapolation of shuttle
flow field phenomena to flight conditions
Period Obligations
09/27/73-06/01/81 FY80: \$35,000 TOTAL: \$216,985
Prin Invest NASA Tech Officer CASE Category
Bertin, J. J. JSC/Goodrich, W. D. 41-Aero Engr

NAS 9-14491 University of Texas - Austin **3997**
Adsorption pumping cryogenic refrigeration study
Period Obligations
02/10/75-08/31/80 FY80: \$454 TOTAL: \$377,056
Prin Invest NASA Tech Officer CASE Category
Hartwig, W. H. JSC/Richard, R. R. 49-Engr, NEC
JSC/Nuss, R. W.

NAS 9-15217 University of Texas - Austin **3998**
Imaging radar math model and airborne imaging radar data
collecting system
Period Obligations
12/15/76-10/31/80 FY80: TOTAL: \$230,969
Prin Invest NASA Tech Officer CASE Category
Tucker, A. J. JSC/Pels, G. F. 49-Engr, NEC

NAS 9-15567 University of Texas - Austin **3999**
Interaction of numerical and dynamical stability
Period Obligations
04/26/78-12/31/80 FY80: TOTAL: \$22,200
Prin Invest NASA Tech Officer CASE Category
Szebekely, V. G. JSC/Bond, V. 12-Chemistry

NAS 9-16096 University of Texas - Austin **4000**
Solar power satellite microwave/ionosphere interaction study
Period Obligations
03/01/80-12/01/80 FY80: \$39,611 TOTAL: \$39,611
Prin Invest NASA Tech Officer CASE Category
Clynn, J. JSC/Scyi, J. W. 31-Atmos Sci

NAS 9-16104 University of Texas - Austin **4001**
Development of software for Synthetic Aperture Radar (SAR)
digital data processing
Period Obligations
05/01/80-12/31/80 FY80: \$17,832 TOTAL: \$17,832
Prin Invest NASA Tech Officer CASE Category
Griffin, C. R. JSC/Pels, G. F. 22-Computer Science

NAS 9-16171 University of Texas - Austin **4002**
Mathematical modeling and simulation of the Advanced Synthetic
Aperture Radar (ASAR) project
Period Obligations
08/01/80-08/01/81 FY80: \$35,000 TOTAL: \$35,000
Prin Invest NASA Tech Officer CASE Category
Griffin, C. R. JSC/Krishen, K. 21-Mathematics

NAS 9-16221 University of Texas - Austin **4003**
Study numerical methods for ground simulation of satellite motion
stability
Period Obligations
09/17/80-07/31/81 FY80: \$5,000 TOTAL: \$5,000
Prin Invest NASA Tech Officer CASE Category
Broucke, R. JSC/Bond, V. 21-Mathematics

NASW 2974 University of Texas - Austin **4004**
Design, development, construction and operational testing of a
completely operational transportable lunar laser tracking station
capable of attaining a three century range accuracy
Period Obligations
07/16/76-04/30/80 FY80: TOTAL: \$1,351,631
Prin Invest NASA Tech Officer CASE Category
Silverberg, E. C. HD-SM/Shirey, W. H. 19-Phys Sci, NEC

NASW 3296 University of Texas - Austin **4005**
The contractor shall design, develop, construct and test a fully
operational lunar laser ranging station
Period Obligations
12/01/79-08/01/81 FY80: \$571,990 TOTAL: \$571,990
Prin Invest NASA Tech Officer CASE Category
Silverberg, E. C. HD-ER/Finley, C. J. 42-Astro Engr
HD-ER/Fischetti, T. L.

NASW 3388 University of Texas - Austin **4006**
Study involving satellite and terrestrial propagation measurements
and analysis
Period Obligations
07/15/80-07/14/81 FY80: \$80,000 TOTAL: \$80,000
Prin Invest NASA Tech Officer CASE Category
Vogel, W. HD-EC/Ippolito, L. J. 45-Elec Engr

NGL 44-012-006 University of Texas - Austin **4007**
Research on millimeter wavelength radiation from solar bodies
Period Obligations
04/29/63-03/31/80 FY80: TOTAL: \$1,466,333
Prin Invest NASA Tech Officer CASE Category
Wilson, W. J. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Quaide, W. L.

NGL 44-012-055 University of Texas - Austin **4008**
Polarization and time structure of Jovian decametric radiation
and the structure of interplanetary plasma
Period Obligations
05/25/66-04/30/81 FY80: TOTAL: \$1,041,980
Prin Invest NASA Tech Officer CASE Category
Douglas, J. N. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Murphy, R. E.

NGR 44-012-152 University of Texas - Austin **4009**
A program of planetary studies
Period Obligations
06/25/69-02/01/81 FY80: \$676,500 TOTAL: \$4,365,698
Prin Invest NASA Tech Officer CASE Category
Smith, H. J. HD-SL/Brunk, W. E. 11-Astronomy
HD-SL/Murphy, R. E.

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NGR 44-012-165 University of Texas - Austin **4010**
Continuation of lunar laser ranging experiments at McDonald Observatory

Period	Obligations	
10/11/69-02/29/80	FY80: \$90,685	TOTAL: \$3,368,884
Prin Invest	NASA Tech Officer	CASE Category
Silverberg, E. C.	GSFC/White, W.	32-Geological Sci
	HD-ER/Flinn, E. A.	

NGR 44-012-282 University of Texas - Austin **4011**
Outer planet satellite studies

Period	Obligations	
09/01/73-10/31/81	FY80: \$21,686	TOTAL: \$306,193
Prin Invest	NASA Tech Officer	CASE Category
Mulholland, J. D.	HD-SL/Brunk, W. E.	11-Astronomy
	HD-SL/Murphy, R. E.	

NGR 44-012-283 University of Texas - Austin **4012**
Precision orbit determination for near-earth satellites

Period	Obligations	
01/14/74-12/31/79	FY80:	TOTAL: \$143,686
Prin Invest	NASA Tech Officer	CASE Category
Tapley, B. D.	GSFC/Kolenkiewicz, R.	
Schutz, B. E.	GSFC/Smith, D. F.	32-Geological Sci

NSG 1446 University of Texas - Austin **4013**
Research into a data management system for scientific/engineering applications

Period	Obligations	
09/01/77-08/31/81	FY80: \$64,095	TOTAL: \$161,985
Prin Invest	NASA Tech Officer	CASE Category
Browne, J. C.	LARC/Shipman, F. S.	22-Computer Science

NSG 1479 University of Texas - Austin **4014**
Verification/validation of space shuttle flight computer programming language (HAL/S)

Period	Obligations	
01/01/78-12/31/79	FY80:	TOTAL: \$51,747
Prin Invest	NASA Tech Officer	CASE Category
Browne, J. C.	LARC/Will, R. W.	22-Computer Science
Good, D. I.	LARC/Foudriat, E. C.	

NSG 1544 University of Texas - Austin **4015**
Surface smoothing

Period	Obligations	
06/01/78-06/30/80	FY80:	TOTAL: \$29,046
Prin Invest	NASA Tech Officer	CASE Category
Cline, A. K.	LARC/Schuess, J. R.	22-Computer Science

NSG 2065 University of Texas - Austin **4016**
Antecedents of achievement and creativity

Period	Obligations	
02/01/75-11/30/80	FY80: \$82,700	TOTAL: \$378,217
Prin Invest	NASA Tech Officer	CASE Category
Helmreich, R. L.	ARC/Patton, R. M.	69-Psych, NEC
Wilhelm, J.	ARC/Tanner, T. A.	

NSG 2345 University of Texas - Austin **4017**
A program of far-infrared observations of star formation regions in molecular clouds

Period	Obligations	
10/01/78-09/30/80	FY80:	TOTAL: \$9,745
Prin Invest	NASA Tech Officer	CASE Category
Evans, N. J., II	ARC/Haughney, L. C.	11-Astronomy
	ARC/Cameron, R. M.	

NSG 3190 University of Texas - Austin **4018**
Preparation, characterization, physical testing and performance of fluorocarbon membranes and separators

Period	Obligations	
06/01/78-05/31/80	FY80:	TOTAL: \$75,000
Prin Invest	NASA Tech Officer	CASE Category
Lagow, R. J.	LERC/Sheibley, D. W.	
Dumitru, E. T.	LERC/Hsu, L. C.	56-Medical Sciences

NSG 3198 University of Texas - Austin **4019**
Acoustic properties of duct lining materials

Period	Obligations	
07/01/78-06, 30/81	FY80: \$736	TOTAL: \$60,736
Prin Invest	NASA Tech Officer	CASE Category
Blackstock, D. T.	LERC/Rice, E. J.	13-Physics
Panton, R. L.		
Perreira, N. D.		

NSG 5154 University of Texas - Austin **4020**
Research of autonomous satellite navigational methods using global positioning satellite system

Period	Obligations	
03/01/77-05/31/79	FY80:	TOTAL: \$76,091
Prin Invest	NASA Tech Officer	CASE Category
Tapley, B. D.	GSFC/Fuchs, A. J.	21-Mathematics
Schutz, B. E.	GSFC/Wooden, W. H., II	

NSG 5233 University of Texas - Austin **4021**
Ultraviolet spectroscopy of X-ray emitting binary systems and ultraviolet observations of interstellar molecules

Period	Obligations	
02/19/78-08/31/79	FY80:	TOTAL: \$12,903
Prin Invest	NASA Tech Officer	CASE Category
VandenBout, P. A.	GSFC/Boggess, A.	11-Astronomy
	GSFC/West, D. K.	

NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)

NSG 5309	University of Texas - Austin	4022
Copernicus ultraviolet spectroscopic observations		
<i>Period</i>	<i>Obligations</i>	
12/15/78-12/14/79	FY80: TOTAL: \$3,111	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, M. A.	GSFC/Kupperian, J. E., Jr.	11-Astronomy
NSG 5328	University of Texas - Austin	4023
Ultraviolet spectroscopy of giant and supergiant stars		
<i>Period</i>	<i>Obligations</i>	
02/01/79-12/31/80	FY80: TOTAL: \$11,720	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Parsons, S. B.	GSFC/Bogges, A.	11-Astronomy
NSG 5337	University of Texas - Austin	4024
Spectrophotometry of selected early type stars		
<i>Period</i>	<i>Obligations</i>	
12/15/78-12/31/80	FY80: TOTAL: \$9,455	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wray, J. D.	GSFC/Bogges, A.	11-Astronomy
Henize, K. G.		
NSG 5379	University of Texas - Austin	4025
Ultraviolet spectroscopy of symbiotic stars, recurrent and old novae		
<i>Period</i>	<i>Obligations</i>	
06/25/79-07/31/81	FY80: \$18,100 TOTAL: \$23,100	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lambert, D. L.	GSFC/Bogges, A.	11-Astronomy
Shields, G. A.		
Slovack, M. H.		
NSG 5387	University of Texas - Austin	4026
Ultraviolet-optical spectrophotometry of interesting quasi-stellar objects		
<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/81	FY80: TOTAL: \$1,670	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wills, B. J.	GSFC/Bogges, A.	11-Astronomy
Wills, D.		
NSG 7159	University of Texas - Austin	4027
Preliminary geophysical and geological site survey of the region of the McDonald Observatory		
<i>Period</i>	<i>Obligations</i>	
09/08/75-01/01/81	FY80: \$60,000 TOTAL: \$349,057	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dorman, J. H.	HD-ER/Finley, C. J.	19-Phys Sci, NEC
Latham, G. V.	HD-ER/Flinn, E. A.	
NSG 7162	University of Texas - Austin	4028
Lunar laser data identification and management		
<i>Period</i>	<i>Obligations</i>	
09/01/75-02/29/80	FY80: TOTAL: \$302,916	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shelus, P. J.	GSFC/White, W.	19-Phys Sci, NEC
	HD-ER/Flinn, E. A.	
NSG 7232	University of Texas - Austin	4029
Astrophysics of supermassive accretion disks		
<i>Period</i>	<i>Obligations</i>	
05/01/76-08/31/81	FY80: \$20,000 TOTAL: \$93,088	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shields, G. A.	HD-SC/Weiler, E. J.	11-Astronomy
Wheeler, J. C.	HD-SC/Bogges, N. W.	
NSG 7363	University of Texas - Austin	4030
Lunar tectonics through space and time		
<i>Period</i>	<i>Obligations</i>	
07/01/77-07/31/80	FY80: TOTAL: \$50,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Muehlberger, W. R.	HD-SL/Dwornik, S. E.	32-Geological Sci
	HD-SL/Quaide, W. L.	
NSG 7371	University of Texas - Austin	4031
Analysis of ultraviolet stellar spectra obtained with Skylab experiment S-019		
<i>Period</i>	<i>Obligations</i>	
08/01/77-12/31/80	FY80: \$17,945 TOTAL: \$134,945	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Henize, K. G.	HD-SC/Weiler, E. J.	11-Astronomy
	HD-SC/Roman, N. W.	
NSG 7381	University of Texas - Austin	4032
Program of 1-5 micron photometry of infrared sources embedded in molecular clouds		
<i>Period</i>	<i>Obligations</i>	
09/01/77-08/31/81	FY80: \$13,852 TOTAL: \$39,797	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Evans, N. J., II	HD-SC/Bogges, N. W.	11-Astronomy
NSG 7480	University of Texas - Austin	4033
The cellular bases of gravity-and light-induced geotropism		
<i>Period</i>	<i>Obligations</i>	
08/15/78-08/14/81	FY80: \$40,000 TOTAL: \$110,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Roux, S. J.	HD-SB/Halstead, T. W.	51-Biological Sci
NSG 7505	University of Texas - Austin	4034
Solid state problems in the solar systems		
<i>Period</i>	<i>Obligations</i>	
09/01/78-08/31/80	FY80: \$42,436 TOTAL: \$149,974	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smoluchowski, R.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/Dwornik, S. L.	
NSG 7557	University of Texas - Austin	4035
Morphogenetic studies of Martian channels		
<i>Period</i>	<i>Obligations</i>	
04/01/79-07/31/81	FY80: \$46,000 TOTAL: \$66,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Baker, V.	HD-SL/Boyce, J. M.	32-Geological Sci

NASA'S UNIVERSITY PROGRAM TEXAS (Continued)

NSG 9021 University of Texas - Austin **4036**
Origin of magnetization in lunar breccias and its bearing on
their formation
Period Obligations
02/01/75-02/29/80 FY80: TOTAL: \$117,125
Prin Invest NASA Tech Officer CASE Category
Gose, W. A. JSC/Harris, J. W. 32-Geological Sci

NGT 44-089-980 Univ of Texas-Grad School of Biomed Sci. **4037**
Aerospace medicine residency program
Period Obligations
01/01/80-12/31/80 FY80: \$28,097 TOTAL: \$28,097
Prin Invest NASA Tech Officer CASE Category
Key, M. M. HD-SB/Nicogossian, A. E. 56-Medical Sciences

NAGW 53 University of Texas - Dallas **4038**
Studies of impulsive penetration and viscous interactions
Period Obligations
02/01/80-01/31/81 FY80: \$27,000 TOTAL: \$27,000
Prin Invest NASA Tech Officer CASE Category
Heikkila, W. J. HD-ST/Hedin, A. E. 19-Phys Sci, NEC
HD-ST/Schmerling, E. R.

NAGW 64 University of Texas - Dallas **4039**
Analysis of data from the Pioneer Venus sounder probe mass
spectrometer
Period Obligations
04/01/80-03/31/81 FY80: \$63,313 TOTAL: \$63,313
Prin Invest NASA Tech Officer CASE Category
Hoffman, J. H. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NAS 5-11406 University of Texas - Dallas **4040**
Atmosphere Explorer magnetic ion mass spectrometer
Period Obligations
04/06/71-09/30/81 FY80: \$150,000 TOTAL: \$1,748,866
Prin Invest NASA Tech Officer CASE Category
Hoffman, J. H. GSFC/Bullock, G. D. 31-Atmos Sci

NAS 5-11407 University of Texas - Dallas **4041**
Planar ion trap experiment
Period Obligations
04/06/71-01/15/81 FY80: \$184,000 TOTAL: \$2,032,079
Prin Invest NASA Tech Officer CASE Category
Hanson, W. B. GSFC/Bullock, G. D. 31-Atmos Sci

NAS 5-24297 University of Texas - Dallas **4042**
Ion drift meter for the dynamic Explorer
Period Obligations
07/25/77-08/31/81 FY80: \$115,000 TOTAL: \$476,277
Prin Invest NASA Tech Officer CASE Category
Heelis, R. A. GSFC/Hoffman, R. A. 13-Physics

NAS 5-24298 University of Texas - Dallas **4043**
Retarding potential analyzer for the dynamic Explorer
Period Obligations
07/26/77-08/31/81 FY80: \$122,000 TOTAL: \$494,704
Prin Invest NASA Tech Officer CASE Category
Hanson, W. B. GSFC/Hoffman, R. A. 13-Physics

NAS 5-24299 University of Texas - Dallas **4044**
Low altitude plasma instrument for Dynamics Explorer (DE)
Period Obligations
11/21/77-07/31/83 FY80: \$302,000 TOTAL: \$901,334
Prin Invest NASA Tech Officer CASE Category
Winningham, J. D. GSFC/Fellerman, K. D. 13-Physics
Klumpar, D. M.

NAS 5-25310 University of Texas - Dallas **4045**
Design, development, fabrication, test and calibration of the ion
velocity instrument for the San Marco spacecraft
Period Obligations
09/18/78-04/30/83 FY80: \$33,000 TOTAL: \$143,000
Prin Invest NASA Tech Officer CASE Category
Hanson, W. B. GSFC/Caporale, A. J. 13-Physics

NAS 5-26068 University of Texas - Dallas **4046**
Ion drift meter instrument data analysis for dynamics Explorer
Period Obligations
02/04/80-07/31/83 FY80: \$18,000 TOTAL: \$18,000
Prin Invest NASA Tech Officer CASE Category
Heelis, R. A. GSFC/Hoffman, R. A. 41-Aero Engr

NAS 5-26070 University of Texas - Dallas **4047**
Low altitude plasma investigation data analysis for dynamics
Explorer
Period Obligations
02/10/80-07/31/84 FY80: \$12,000 TOTAL: \$12,000
Prin Invest NASA Tech Officer CASE Category
Winningham, J. D. GSFC/Hoffman, R. A. 41-Aero Engr

NAS 5-26071 University of Texas - Dallas **4048**
Retarding potential analyzer instrument for dynamics Explorer
Period Obligations
02/10/80-07/31/84 FY80: \$18,000 TOTAL: \$18,000
Prin Invest NASA Tech Officer CASE Category
Hanson, W. B. GSFC/Hoffman, R. A. 41-Aero Engr

NAS 5-26309 University of Texas - Dallas **4049**
Magsat science investigation: Investigation of the effects of
external current systems on the Magsat data utilizing grid cell
modeling techniques techniques
Period Obligations
09/15/80-07/14/82 FY80: \$30,000 TOTAL: \$30,000
Prin Invest NASA Tech Officer CASE Category
Klumpar, D. M. GSFC/Oseroff, H. 32-Geological Sci
Kisabeth, J. L.

NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)

NAS 8-31775 **University of Texas - Dallas** **4050**
Study of ATS 6 and OGO 5 data analysis
Period *Obligations*
03/18/76-11/27/80 **FY80:** **TOTAL: \$76,933**
Prin Invest *NASA Tech Officer* *CASE Category*
Hanson, W. B. MSFC/Chappell, C. R. 19-Phys Sci, NEC
MSFC/Fields, S. A.

NGR 44-004-120 **University of Texas - Dallas** **4057**
Rocket probes for the upper F-region
Period *Obligations*
02/09/71-09/30/80 **FY80:** **TOTAL: \$1,130,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Hanson, W. B. HD-ST/Wiskerchen, M. J. 31-Atmos Sci
HD-ST/Schmerling, E. R.

NAS 8-32689 **University of Texas - Dallas** **4051**
Technology demonstration measurement for the molecular wake shield
Period *Obligations*
05/19/78-02/18/80 **FY80: \$176** **TOTAL: \$30,145**
Prin Invest *NASA Tech Officer* *CASE Category*
Hoffman, J. H. MSFC/Moore, W. W. 31-Atmos Sci
Hodges, R. R. MSFC/Oran, W. A.

NGR 44-004-124 **University of Texas - Dallas** **4058**
Rocket investigation of auroral zone disturbances
Period *Obligations*
08/10/71-09/30/80 **FY80:** **TOTAL: \$1,201,616**
Prin Invest *NASA Tech Officer* *CASE Category*
Winningham, J. D. GSFC/Guidotti, J. 13-Physics
Heikkila, W. J.
Eaker, N.

NAS 8-32831 **University of Texas - Dallas** **4052**
Retarding ion mass spectrometer for dynamics Explorer
Period *Obligations*
01/17/78-05/30/83 **FY80: \$78,001** **TOTAL: \$661,613**
Prin Invest *NASA Tech Officer* *CASE Category*
Hanson, W. B. MSFC/Chappell, C. R. 13-Physics
Hoffman, J. H. MSFC/Fields, S. A.

NSG 5085 **University of Texas - Dallas** **4059**
Particle spectrometer on board ISIS-2
Period *Obligations*
11/01/75-12/31/80 **FY80: \$30,000** **TOTAL: \$185,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Heikkila, W. J. GSFC/Brace, L. H. 31-Atmos Sci
Winningham, J. D.

NAS 8-33827 **University of Texas - Dallas** **4053**
Measurement of visible and UV emissions from energetic neutral atom precipitation definition phase study
Period *Obligations*
08/12/80-08/11/81 **FY80: \$60,000** **TOTAL: \$60,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Tinney, B. A. MSFC/Jones, C. T. 31-Atmos Sci

NSG 5087 **University of Texas - Dallas** **4060**
Ion composition research on ISIS-2
Period *Obligations*
12/01/75-02/28/81 **FY80: \$25,000** **TOTAL: \$140,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Hoffman, J. H. GSFC/Brace, L. H. 31-Atmos Sci

NAS 9-16044 **University of Texas - Dallas** **4054**
Cardiovascular adaption to zero gravity
Period *Obligations*
01/17/80-05/31/81 **FY80: \$30,121** **TOTAL: \$30,121**
Prin Invest *NASA Tech Officer* *CASE Category*
Blomquist, C. G. JSC/Lintott, J. 59-Life Sci, NEC

NSG 5280 **University of Texas - Dallas** **4061**
Electrodynamic coupling in the ionosphere magnetosphere system
Period *Obligations*
07/01/78-12/31/80 **FY80:** **TOTAL: \$49,178**
Prin Invest *NASA Tech Officer* *CASE Category*
Klumpar, D. M. GSFC/Spencer, N. W. 31-Atmos Sci
Burrows, J. R.
Wallis, D. D.

NGL 44-004-026 **University of Texas - Dallas** **4055**
Investigations into the mechanism and rates of atmospheric mixing in the lower thermosphere
Period *Obligations*
05/05/65-03/31/81 **FY80: \$113,333** **TOTAL: \$2,478,084**
Prin Invest *NASA Tech Officer* *CASE Category*
Hanson, W. B. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NSG 7034 **University of Texas - Dallas** **4062**
Investigation of the daytime lunar atmosphere for lunar synthesis program
Period *Obligations*
04/01/74-03/31/81 **FY80: \$58,117** **TOTAL: \$341,133**
Prin Invest *NASA Tech Officer* *CASE Category*
Hodges, R. R. HD-SL/Quaide, W. L. 31-Atmos Sci
HD-SL/French, B. E.

NGL 44-004-130 **University of Texas - Dallas** **4056**
Selected studies in the space sciences
Period *Obligations*
03/17/72-03/31/82 **FY80: \$150,000** **TOTAL: \$1,950,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Hanson, W. B. HD-SP/Heninger, L. W. 99-Multi-Discip
Hoffman, J. H. HD-SP/Taylor, T. C.
McClure, J. P.

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NSG 7599 University of Texas - Dallas 4063
Continued analysis of data from the Viking retarding potential analyzer (RPA's)

Period	Obligations	
03/01/79-12/31/81	FY80: \$30,000	TOTAL: \$50,000
Prin Invest	NASA Tech Officer	CASE Category
Hanson, W. B.	HD-SL/Murphy, R. E.	31-Atmos Sci
	HD-SL/Brunk, W. E.	

NAS 5-2117 Univ of Texas Medical Branch - Galveston 4070
Laser ranging system: Field techniques and planning laser geodynamics

Period	Obligations	
12/14/79-03/31/81	FY80: \$55,000	TOTAL: \$55,000
Prin Invest	NASA Tech Officer	CASE Category
Dorman, H. J.	GSFC/Stephanides, C. C.	32-Geological Sci

NAS 9-16142 University of Texas - El Paso 4064
Geophysical studies of the Rio Grande rift

Period	Obligations	
06/24/80-12/31/80	FY80: \$10,000	TOTAL: \$10,000
Prin Invest	NASA Tech Officer	CASE Category
Keller, G. R.	JSC/Blanchard, D. P.	32-Geological Sci

NAS 9-14641 Univ of Texas Medical Branch - Galveston 4071
Analysis of spontaneous vestibular primary afferent discharge following application of drugs

Period	Obligations	
05/01/75-03/31/81	FY80: \$45,377	TOTAL: \$200,350
Prin Invest	NASA Tech Officer	CASE Category
Correia, M. J.	JSC/Reschke, M. F.	69-Psych, NEC

NSG 3146 University of Texas - El Paso 4065
Size effect studies of thin metal films

Period	Obligations	
05/02/77-06/30/80	FY80:	TOTAL: \$54,993
Prin Invest	NASA Tech Officer	CASE Category
Brent, S. J.	LERC/Brandhorst, H. W., Jr.	
Roser, W. R.		47-Materials Engr

NAS 9-15565 Univ of Texas Medical Branch - Galveston 4072
Micro assay for catecholamine concentration in body fluids

Period	Obligations	
03/27/78-09/30/80	FY80: \$33	TOTAL: \$15,033
Prin Invest	NASA Tech Officer	CASE Category
Ziegler, M. G.	JSC/Leach, C. S.	59-Life Sci, NEC

NSG 7418 Univ of Texas Medical Branch - Galveston 4073
Lunar seismic data analysis

NSG 9062 University of Texas - El Paso 4066
Occurrence and mineral chemistry of high pressure phases

Period	Obligations	
06/01/78-05/31/81	FY80: \$22,000	TOTAL: \$47,374
Prin Invest	NASA Tech Officer	CASE Category
Hoffer, J. M.	JSC/Duke, M.	12-Chemistry

Period	Obligations	
02/01/78-01/31/81	FY80: \$150,000	TOTAL: \$639,378
Prin Invest	NASA Tech Officer	CASE Category
Makamura, Y.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. F.	

NAG 2-26 Univ of Texas Medical Branch - Galveston 4067
Central otolithic mechanisms in non-human primates

Period	Obligations	
01/01/80-12/31/80	FY80: \$30,100	TOTAL: \$30,100
Prin Invest	NASA Tech Officer	CASE Category
Perachio, A. A.	ARC/Daunton, N. G.	51-Biological Sci

NSG 9026 University of Texas Health Center - Dallas 4074
Cardiovascular effect of variations in habitual levels of physical activity

Period	Obligations	
03/01/75-03/31/81	FY80: \$40,650	TOTAL: \$308,350
Prin Invest	NASA Tech Officer	CASE Category
Blomquist, C. G.	JSC/Hull, W. E.	56-Medical Sciences
Mitchell, J. H.		

NAS 2-10502 Univ of Texas Medical Branch - Galveston 4068
Anatomical and electrophysiological studies of the effects of weightlessness on the vestibular apparatus of the gerbil

Period	Obligations	
01/17/80-04/30/81	FY80: \$38,503	TOTAL: \$38,503
Prin Invest	NASA Tech Officer	CASE Category
Correia, M. J.	ARC/Ferandin, J.	51-Biological Sci
Eden, A. R.	ARC/Donaldson, R.	

NAG 9-5 Univ of Texas Health Sci Ctr-San Antonio 4075
The effect of stress on human blood platelets

Period	Obligations	
03/01/80-02/28/81	FY80: \$50,000	TOTAL: \$50,000
Prin Invest	NASA Tech Officer	CASE Category
George, J. N.	JSC/Leach, C. S.	56-Medical Sciences
Levine, S. P.		
Lyons, R. M.		

NAS 2-10513 Univ of Texas Medical Branch - Galveston 4069
Influence of spaceflight on cytogenetics and mutagenicity

Period	Obligations	
01/17/80-04/30/81	FY80: \$12,090	TOTAL: \$12,090
Prin Invest	NASA Tech Officer	CASE Category
Fabricant, J. D.	ARC/Ferandin, J.	51-Biological Sci
	ARC/Sebesta, P.	

NAS 2-10500 Univ of Texas-Health Science Center 4076
Etiology of deconditioning of antigravity muscle in rats during weightlessness

Period	Obligations	
01/17/80-12/30/80	FY80: \$8,432	TOTAL: \$8,432
Prin Invest	NASA Tech Officer	CASE Category
Booth, F.	ARC/Rasmussen, D.	51-Biological Sci
	ARC/Sebesta, P.	

NASA'S UNIVERSITY PROGRAM TEXAS (Continued)

NAS 9-15388 Univ of Texas-Health Science Center 4077
Biochemical adaptation of antigravity muscle fibers to disuse atrophy

Period	Obligations	
08/01/77-10/31/80	FY80:	TOTAL: \$86,350
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Booth, F.	JSC/Smith, M.	51-Biological Sci

NAGW 11 University of Utah 4083
Irregular satellites and trojan asteroids study

Period	Obligations	
11/01/79-10/31/80	FY80: \$7,492	TOTAL: \$7,492
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shorthill, R. W.	HD-SL/Brunk, W. E.	11-Astronomy
	HD-SL/Murphy, R. E.	

NSG 5214 University of Texas - San Antonio 4078
Research of solar wind and magnetospheric electric fields and plasmas

Period	Obligations	
10/01/77-11/30/78	FY80:	TOTAL: \$33,570
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burch, J. L.	GSFC/Spencer, N. W.	13-Physics

NAGW 82 University of Utah 4084
An experimental investigation of the angular scattering and backscattering behavior of the simulated clouds of the outer planets

Period	Obligations	
06/01/80-05/31/81	FY80: \$49,687	TOTAL: \$49,687
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sassen, K.	HD-SL/Murphy, R. E.	31-Atmos Sci
	HD-SL/Brunk, W. E.	

NSG 5418 University of Texas - San Antonio 4079
Solar-wind and magnetospheric electric fields and plasmas

Period	Obligations	
10/01/79-12/31/80	FY80:	TOTAL: \$19,744
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burch, J. L.	GSFC/Spencer, N. W.	31-Atmos Sci

NAGW 95 University of Utah 4085
Identifying environmental features for land management decisions

Period	Obligations	
08/01/80-07/31/83	FY80: \$100,000	TOTAL: \$100,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ursenbach, W. O.	HD-ET/Vitale, J. A.	39-Env Sci, NEC
Ridd, M. K.		

UTAH

NAG 5-62 Brigham Young University 4080
Ultraviolet studies of the components of cepheid variables

Period	Obligations	
06/01/80-05/31/81	FY80: \$8,092	TOTAL: \$8,092
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McNamara, D. H.	GSFC/Bogges, A.	11-Astronomy
Feltz, K.		

NAS 2-10308 University of Utah 4086
Growth rate and histology of long bones and vertebrae

Period	Obligations	
09/01/79-08/31/80	FY80: \$31,000	TOTAL: \$32,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jee, W. S.	ARC/Souza, K. A.	51-Biological Sci
Kimmel, D. B.		

NAS 2-7358 Brigham Young University 4081
Pioneer F/G data analysis of the solar terrestrial relations portion of the magnetic field experiment

Period	Obligations	
00/00/00-11/30/80	FY80: \$5,000	TOTAL: \$78,900
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jones, D. E.	ARC/Fimmel, R. O	13-Physics
	ARC/Dyer, J.	

NAS 5-25373 University of Utah 4087
Linear and nonlinear interactions of the large scale atmospheric waves

Period	Obligations	
11/27/78-12/26/80	FY80: \$38,398	TOTAL: \$76,396
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kao, S. K.	GSFC/Greaves, J. R.	31-Atmos Sci
	GSFC/Stetina, F. L.	

NAG 3-27 University of Utah 4082
Carbon-13 NMR analysis of shale oils and shale oil derived jet fuels

Period	Obligations	
03/01/80-02/28/81	FY80: \$62,000	TOTAL: \$62,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ursenbach, W. O.	LERC/Seng, G. T.	12-Chemistry
Pugmire, R. J.		

NAS 5-26171 University of Utah 4088
Study of the imaging stratospheric ultraviolet spectrometer for the Upper Atmosphere Research Satellite (UARS)

Period	Obligations	
09/24/80-06/30/81	FY80: \$255,582	TOTAL: \$255,582
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Torr, D. G.	GSFC/Donley, J. L.	31-Atmos Sci

NASA'S UNIVERSITY PROGRAM

UTAH (Continued)

NAS 6-2627 University of Utah **4089**
 Rocketsonde data processing and participation in the meteorological rocket/Nimbus satellite data comparison project
Period *Obligations*
 03/21/75-10/06/79 FY80: TOTAL: \$230,431
Prin Invest *NASA Tech Officer* *CASE Category*
 Staffanson, F. L. WFC/Duke, J. R. 31-Atmos Sci
 WFC/Schmidlin, F. J.

NAS 8-33992 University of Utah **4090**
 Development, integration, mission support and data analysis of the imaging spectrometric observatory experiment for spacelab mission I
Period *Obligations*
 07/25/80-09/30/83 FY80 \$80,000 TOTAL: \$80,000
Prin Invest *NASA Tech Officer* *CASE Category*
 Torr, M. R. MSFC/Jones, C. T. 31-Atmos Sci
 MSFC/Isa, R.

NCA 2-821001 University of Utah **4091**
 Light scattering by nonspherical particles
Period *Obligations*
 03/15/80-12/31/80 FY80 \$18,187 TOTAL: \$18,187
Prin Invest *NASA Tech Officer* *CASE Category*
 Liou, K. ARC/Pollack, J. B. 31-Atmos Sci
 Coleman, R. F. ARC/Cuzzi, J. N.

NSG 1534 University of Utah **4092**
 Fluid dynamics of crystallization from vapors
Period *Obligations*
 06/01/78-09/30/80 FY80: \$91,553 TOTAL: \$192,503
Prin Invest *NASA Tech Officer* *CASE Category*
 Rosenberger, F. F. IARC/Fripp, A. L. 47-Materials Engr
 IARC/Crouch, R. K.

NSG 2350 University of Utah **4093**
 Develop behavioral tests of vestibular functioning in the wistar rat
Period *Obligations*
 12/01/78-11/30/80 FY80: \$15,136 TOTAL: \$33,169
Prin Invest *NASA Tech Officer* *CASE Category*
 Nielson, H. C. ARC/Sharp, J. C. 61-Biol Aspects

NSG 7226 University of Utah **4094**
 Identifying environmental features for land management decisions
Period *Obligations*
 08/01/76-07/31/82 FY80 \$100,000 TOTAL: \$500,000
Prin Invest *NASA Tech Officer* *CASE Category*
 Ridd, M. K. HD-ET/Vitale, J. A. 39-Env Sci, NEC

NSG 7516 University of Utah **4095**
 Mechanistic studies of prebiotic chemistry
Period *Obligations*
 10/01/78-06/30/81 FY80 \$68,900 TOTAL: \$108,900
Prin Invest *NASA Tech Officer* *CASE Category*
 Guillory, W. A. HD-SB/Devincenzi, D. L. 12-Chemistry
 Smith, G. R. HD-LU/Lawson, J. R.

NAG 5-121 Utah State University **4096**
 A study of atmosphere-ionosphere-magnetosphere coupling
Period *Obligations*
 10/01/80-09/30/81 FY80: \$25,000 TOTAL: \$25,000
Prin Invest *NASA Tech Officer* *CASE Category*
 Raitt, W. J. GSFC/Corrigan, J. P. 11-Astronomy

NAGW 77 Utah State University **4097**
 The flow of plasma in the solar terrestrial environment
Period *Obligations*
 07/01/80-06/30/81 FY80: \$148,000 TOTAL: \$148,000
Prin Invest *NASA Tech Officer* *CASE Category*
 Schunk, R. W. HD-ST/Birmingham, T. J. 13-Physics
 HD-ST/Newton, G. P.

NAS 5-24455 Utah State University **4098**
 Investigations of Vehicle Charging and Potential (VCAP) on orbital flight test four experiment
Period *Obligations*
 03/01/78-10/31/81 FY80 TOTAL: \$1,005,729
Prin Invest *NASA Tech Officer* *CASE Category*
 Banks, P. M. GSFC/Liband, A. M. 13-Physics
 Raitt, W. J.

NAS 8-32636 Utah State University **4099**
 Large spacecraft interaction with ambient environment at geosynchronous Earth orbit charging
Period *Obligations*
 09/20/77-09/30/81 FY80 \$36,713 TOTAL: \$116,577
Prin Invest *NASA Tech Officer* *CASE Category*
 Raitt, W. J. MSFC/Chappell, C. R. 31-Atmos Sci

NAS 8-33381 Utah State University **4100**
 Studies related to electro dynamics of the tethered subsatellite system
Period *Obligations*
 04/16/79-06/11/80 FY80 \$16,417 TOTAL: \$51,417
Prin Invest *NASA Tech Officer* *CASE Category*
 Williamson, P. R. MSFC/Johnson, W. G. 31-Atmos Sci
 MSFC/Lundquist, C. A.

NAS 8-33383 Utah State University **4101**
 Establish a tethered subsatellite facility definition team
Period *Obligations*
 05/07/79-07/31/80 FY80: \$13,375 TOTAL: \$48,375
Prin Invest *NASA Tech Officer* *CASE Category*
 Banks, P. M. MSFC/Johnson, W. G. 31-Atmos Sci
 MSFC/Stone, N. H.

NAS 8-34003 Utah State University **4102**
 Research study Interactive experiments study
Period *Obligations*
 08/01/80-07/31/81 FY80 \$72,500 TOTAL: \$72,500
Prin Invest *NASA Tech Officer* *CASE Category*
 Banks, P. M. MSFC/Chappell, C. R. 13-Physics
 MSFC/Fields, S. A.

UTAH (Continued)

NSG 7567	Utah State University	4110
An examination of the clinostat problem using leafy plants		
<i>Period</i>	<i>Obligations</i>	
07/01/71-06/30/81	FY80: \$29,982	TOTAL: \$51,442
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Salisbury, F. B.	HD-SB/Halstead, T.W.	51-Biological Sci

NAGW 19	Weber State College	4111
Mass flow velocity distributions in the solar chromosphere		
<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/80	FY80: \$19,521	TOTAL: \$19,521
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tripp, D. A.	HD-ST/Chipman, E.	13-Physics

NAS 8-33113	Weber State College	4112
Spectrum synthesis of extreme ultraviolet solar flare profiles		
<i>Period</i>	<i>Obligations</i>	
01/24/79-07/23/80	FY80:	TOTAL: \$17,991
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tripp, D. A.	MSFC/DeLoach, A. C.	31-Atmos Sci
	MSFC/Snoddy, W. C.	

VERMONT

NAGW 54	Middlebury College	4113
Structure of field rotating disturbances in warm plasma		
<i>Period</i>	<i>Obligations</i>	
03/01/80-08/31/81	FY80: \$10,000	TOTAL: \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wolfson, L. T.	HD-ST/Hedin, A. E.	19-Phys Sci, NEC
	HD-ST/Schmerling, E. R.	

NSG 7453	Univ of Vermont & St Agricultural Col.	4114
Development of a remote sensing applications program in Vermont		
Period	Obligations	
06/01/78-05/31/83	FY80: \$100,000	TOTAL: \$400,000
Prin Invest	NSA Tech Officer	CASE Category
John, H. H.	HD-ET/Vitale, J. A.	32-Geological Sci

VIRGINIA

NSG 1514	Christopher Newport College	4115
An investigation of semiconductor electrodes		
<i>Period</i>	<i>Obligations</i>	
09/01/78-12/31/80	FY80: \$28,480	TOTAL: \$56,737
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Buoncristiani, A. M.	LARC/Byvik, C. E.	13-Physics
	LARC/Conway, E. J.	

NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)

NSG 1614 **Christopher Newport College** **4116**
Theoretical study of radiation effects in composite materials for
space use
Period *Obligations*
07/01/79-08/31/81 FY80: \$38,950 TOTAL: \$70,950
Prin Invest *NASA Tech Officer* *CASE Category*
Chang, C. K. LARC/Wilson, J. W. 19-Phys Sci, NEC

NAG 1-33 **College of William And Mary** **4117**
Silicon superlattices: Theory and application to semiconductor
devices
Period *Obligations*
01/16/80-07/15/81 FY80: \$20,675 TOTAL: \$20,675
Prin Invest *NASA Tech Officer* *CASE Category*
Moriarty, J. A. LARC/Stermer, R. L. 13-Physics
LARC/Hayes, P. J.

NAG 1-62 **College of William And Mary** **4118**
Definition of the operational semantics of ADA
Period *Obligations*
05/01/80-08/31/81 FY80: \$23,608 TOTAL: \$23,608
Prin Invest *NASA Tech Officer* *CASE Category*
Feyock, S. LARC/Harris, J. L. 22-Computer Science

NAS 1-9990 **College of William And Mary** **4119**
Management, operation and maintenance of the space radiation
effects laboratory
Period *Obligations*
07/01/70-09/30/80 FY80: \$139,844 TOTAL: \$3,626,058
Prin Invest *NASA Tech Officer* *CASE Category*
Aceto, H., Jr. LARC/Kepley, B. M. 19-Phys Sci, NEC

NAS 1-14972 **College of William And Mary** **4120**
Research in the area of physical sciences
Period *Obligations*
05/31/77-05/30/80 FY80: TOTAL: \$298,618
Prin Invest *NASA Tech Officer* *CASE Category*
Aceto, H., Jr. LARC/Anderson, A. F. 99-Multi-Discip

NAS 1-15899 **College of William And Mary** **4121**
Lecture series, 'Our Future in the Cosmos'
Period *Obligations*
07/31/79-10/30/80 FY80: TOTAL: \$32,119
Prin Invest *NASA Tech Officer* *CASE Category*
Barnes, C. H. LARC/Greene, R. F., Jr. 99-Multi-Discip
LARC/Long, S. A

NAS 1-15965 **College of William And Mary** **4122**
Tire nonlinear model
Period *Obligations*
09/07/79-06/06/80 FY80 TOTAL: \$31,000
Prin Invest *NASA Tech Officer* *CASE Category*
Anderson, C. M. LARC/Tanner, J. A. 46 Mech Engr

NAS 1-16042 **College of William And Mary** **4123**
Research in the area of physical sciences
Period *Obligations*
11/16/79-11/15/82 FY80: \$95,186 TOTAL: \$95,186
Prin Invest *NASA Tech Officer* *CASE Category*
Aceto, H., Jr. LARC/Duberg, J. E. 99-Multi-Discip
LARC/Erickson, W. D.

NAS 1-16375 **College of William And Mary** **4124**
Lecture series entitled 'Our Future in the Cosmos'
Period *Obligations*
08/28/80-11/27/81 FY80: \$34,840 TOTAL: \$34,840
Prin Invest *NASA Tech Officer* *CASE Category*
Barnes, C. H. LARC/Morris, S. J. 99-Multi-Discip
LARC/Long, E. R.

NCC 1-3 **College of William And Mary** **4125**
Atmosphere Spacelab science investigation
Period *Obligations*
05/01/79-12/31/81 FY80: \$43,000 TOTAL: \$78,000
Prin Invest *NASA Tech Officer* *CASE Category*
Schone, H. LARC/Sullivan, F. M. 31-Atmos Sci
LARC/Russell, J. M., III

NCC 1-16 **College of William And Mary** **4126**
Analysis of remote sensors for pollution
Period *Obligations*
08/01/79-07/31/81 FY80: TOTAL: \$48,361
Prin Invest *NASA Tech Officer* *CASE Category*
Schone, H. LARC/Sullivan, F. M. 31-Atmos Sci
LARC/Russell, J. M., III

NCC 1-40 **College of William And Mary** **4127**
Tire nonlinear model
Period *Obligations*
04/16/80-08/31/81 FY80: \$55,800 TOTAL: \$55,800
Prin Invest *NASA Tech Officer* *CASE Category*
Anderson, C. M. LARC/Tanner, J. A. 46-Mech Engr

NCC 1-43 **College of William And Mary** **4128**
Halogen Occultation Experiment (HALOE) science investigation
Period *Obligations*
08/01/80-07/31/81 FY80: \$28,600 TOTAL: \$28,600
Prin Invest *NASA Tech Officer* *CASE Category*
Schone, H. LARC/Sullivan, E. M. 31-Atmos Sci
LARC/Russell, J. M.

NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)

NSG 1095 College of William And Mary 4129
Molecular weight-property relationships of high performance
polymers used for adhesives and composites
Period Obligations
09/01/74-05/31/81 FY80: \$49,214 TOTAL: \$100,482
Prin Invest NASA Tech Officer CASE Category
Kranbuehl, D. E. LARC/Burks, H. D 12-Chemistry
LARC/Johnston, N. J

NSG 7416 College of William And Mary 4135
Research on turbulence in plasmas
Period Obligations
12/01/77-11/30/80 FY80: TOTAL: \$70,900
Prin Invest NASA Tech Officer CASE Category
Montgomery, D. C. HD-ST/Cauffman, D. P. 19-Phys Sci, NEC
HD-ST/Schmerling, E. R.

NSG 1435 College of William And Mary 4130
Development of a multi-target compiler writing system
Period Obligations
07/11/77-09/30/81 FY80: \$103,868 TOTAL: \$310,828
Prin Invest NASA Tech Officer CASE Category
Donegan, M. K. LARC/Harris, J. I 21-Mathematics
Noonan, R. F.

NAS 6-2964 Eastern Shore Community College 4136
Provide a public information program
Period Obligations
01/01/79-12/31/80 FY80: \$14,958 TOTAL: \$29,716
Prin Invest NASA Tech Officer CASE Category
Layman, P. WFC/Millner, J. B. 99-Multi-Discip
WFC/Gladding, M. T.

NSG 1564 College of William And Mary 4131
Dynamics of collisionless systems
Period Obligations
10/15/78-08/31/80 FY80: \$700 TOTAL: \$12,766
Prin Invest NASA Tech Officer CASE Category
Zang, T. A. LARC/Meador, W. F 13-Physics

NAG 5-124 George Mason University 4137
Data analysis of soft X-ray observations with high energy
astronomical observations-2 of late type stars
Period Obligations
10/01/80-09/30/81 FY80: \$9,966 TOTAL: \$9,966
Prin Invest NASA Tech Officer CASE Category
Kafatos, M. GSFC/Michalitsianos I, A. G.
GSFC/Hobbs, R. W. 11-Astronomy

NSG 1625 College of William And Mary 4132
Methodologies for optimizing maintenance models for advanced
avionics control systems
Period Obligations
09/01/79-08/31/81 FY80: \$31,057 TOTAL: \$59,476
Prin Invest NASA Tech Officer CASE Category
Schaefer, M. K. LARC/Finelli, G. B. 49-Engr, NEC

NSG 5305 George Mason University 4138
Calculations of forbidden line emission from hot, interstellar gas
regions
Period Obligations
11/01/78-12/31/79 FY80: TOTAL: \$4,494
Prin Invest NASA Tech Officer CASE Category
Kafatos, M. GSFC/Hobbs, R. W. 11-Astronomy

NSG 1626 College of William And Mary 4133
Investigation of portability techniques for a large flight-oriented
programming language
Period Obligations
06/01/79-08/31/81 FY80: \$44,938 TOTAL: \$85,075
Prin Invest NASA Tech Officer CASE Category
Feyock, S. LARC/Foudriat, F. C
LARC/Will, R. W. 22-Computer Science

NSG 5371 George Mason University 4139
Observation of circumstellar shells around cool giants and
supergiants
Period Obligations
06/01/79-08/31/81 FY80: \$18,088 TOTAL: \$23,586
Prin Invest NASA Tech Officer CASE Category
Michalitsianos, A. G. GSFC/Boggett, A. 11-Astronomy
Hobbs, R. W.

NSG 1653 College of William And Mary 4134
Insulators for plumbum-stannum-tellurium metal-insulator-
semiconductor devices
Period Obligations
10/01/79-12/31/80 FY80: TOTAL: \$26,560
Prin Invest NASA Tech Officer CASE Category
Sher, A. LARC/Fripp, A. L 13-Physics
Tsuo, Y. N. LARC/Crouch, R. K.

NSG 5403 George Mason University 4140
Interpretation of survey work of supernova shocks, bubbles and
studying variability of active galaxies
Period Obligations
07/01/79-10/31/80 FY80: \$6,307 TOTAL: \$14, 1
Prin Invest NASA Tech Officer CASE Category
Kafatos, M. GSFC/Gull, T. R. 11-Astronomy
GSFC/Boggett, A.

NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)

NAG 1-69 Hampton Institute 4141
Generation of cost and fuel optimal vertical flight profiles
Period Obligations
06/01/80-02/28/81 FY80: \$9,613 TOTAL: \$9,613
Prin Invest NASA Tech Officer CASE Categories
Wiggs, J. F. LARC/Shanks, R. E. 41-Aero Engr
LARC/Morello, S. A.

NAG 1-87 Hampton Institute 4142
Local effects of partly cloudy skies on solar and emitted radiation
Period Obligations
08/01/80-07/31/81 FY80: \$127,394 TOTAL: \$127,394
Prin Invest NASA Tech Officer CASE Categories
Venable, D. D. LARC/Young, G. R. 31-Atmos Sci
Whitney, D. A. LARC/Raper, J. L.

NAS 1-14832 Hampton Institute 4143
Summer research fellowship program
Period Obligations
02/04/77-01/31/81 FY80: \$62,147 TOTAL: \$209,272
Prin Invest NASA Tech Officer CASE Categories
Darden, G. C. LARC/Erickson, W. D. 19-Phys Sci, NEC

NAS 1-15445 Hampton Institute 4144
Minimization of differences between simulated and actual flight data for area navigation (R-NAV) on high speed aircraft
Period Obligations
07/06/78-07/05/79 FY80 TOTAL: \$14,592
Prin Invest NASA Tech Officer CASE Categories
Hargrove, A. LARC/Knox, C. F. 41-Aero Engr
LARC/Taylor, R. T.

NAS 1-15877 Hampton Institute 4145
Experimental and theoretical investigations of freestream noise in supersonic nozzles and its effects on boundary layer stability and transition
Period Obligations
07/11/79-10/01/80 FY80 TOTAL: \$44,409
Prin Invest NASA Tech Officer CASE Categories
Anyiwo, J. C. LARC/Beckwith, I. F. 41-Aero Engr
Schopper, M. R. LARC/Bushnell, D. M.

NAS 1-16005 Hampton Institute 4146
Conversion of flight records
Period Obligations
10/01/79-09/30/80 FY80: \$39,396 TOTAL: \$39,396
Prin Invest NASA Tech Officer CASE Categories
Unavailable LARC/Jewel, J. W. 41-Aero Engr
LARC/Hall, A. W.

NCC 1-7 Hampton Institute 4147
Complex vector operations on star computer with applications to linear algebra problems linear systems of linear equations
Period Obligations
04/15/79-01/18/81 FY80: \$24,484 TOTAL: \$56,481
Prin Invest NASA Tech Officer CASE Categories
Shan, S. N. LARC/Haigler, G. W. 21-Mathematics
LARC/Lambiotte, J. J.

NCC 1-11 Hampton Institute 4148
Radiative transfer model for remote sensing of laser-induced fluorescence of phytoplankton in non-homogeneous turbid waters
Period Obligations
05/01/79-04/30/81 FY80: \$6,764 TOTAL: \$49,412
Prin Invest NASA Tech Officer CASE Categories
Venable, D. D. LARC/Poole, L. R. 39-Env Sci, NEC

NSG 1294 Hampton Institute 4149
A study of digital techniques for high-speed processing of detector array data
Period Obligations
04/01/76-09/30/80 FY80: \$9,935 TOTAL: \$159,641
Prin Invest NASA Tech Officer CASE Categories
Trehan, A. K. LARC/Jobson, D. J. 45-Elec Engr
LARC/Katzberg, S. J.

NSG 1552 Hampton Institute 4150
Investigation of microprocessors for use as controllers for tunable diode lasers
Period Obligations
07/24/78-09/23/80 FY80 TOTAL: \$71,485
Prin Invest NASA Tech Officer CASE Categories
Trehan, A. K. LARC/Katzberg, S. J. 45-Elec Engr
Davenport, J. E. LARC/Kowitz, H. R.

NSG 1595 Hampton Institute 4151
Studies of new media for radiation induced lasers
Period Obligations
02/01/79-01/31/81 FY80: \$41,113 TOTAL: \$80,536
Prin Invest NASA Tech Officer CASE Categories
Han, K. S. LARC/Jalufka, N. W. 13-Physics

NAS 1-16361 Norfolk State University 4152
Documentation and Research support in the use of MACSYMA
Period Obligations
08/12/80-08/11/81 FY80: \$16,746 TOTAL: \$16,746
Prin Invest NASA Tech Officer CASE Categories
DeLoatch, S. J. LARC/Shoosmith, J. N. 22-Computer Science

NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)

NAG 1-1 **Old Dominion University** **4153**
Performance improvement of lead-tin-selenium (Pb sub 1x Sn sub x Se) semiconductor lasers through use of frequency selective optical feedback
Period *Obligations*
10/25/79-10/24/80 FY80: \$56,769 TOTAL: \$56,769
Prin Invest *NASA Tech Officer* *CASE Category*
Copeland, G. E. LARC/Hoell, J. M. 13-Physics
Harward, C. N.

NAG 1-15 **Old Dominion University** **4154**
Propagation of sound through the Earth's atmosphere
Period *Obligations*
01/01/80-12/31/80 FY80: \$59,245 TOTAL: \$59,245
Prin Invest *NASA Tech Officer* *CASE Category*
Zuckerwar, A. J. LARC/Holmes, H. K. 13-Physics
Becher, J.

NAG 1-21 **Old Dominion University** **4155**
Radiative transfer models for the Earth radiation budget studies
Period *Obligations*
01/01/80-12/31/80 FY80: \$45,588 TOTAL: \$45,588
Prin Invest *NASA Tech Officer* *CASE Category*
Tiwar, S. N. LARC/Sutiles, J. T. 31-Atmos Sci
LARC/Young, G. R.

NAG 1-25 **Old Dominion University** **4156**
Spectral multigrid methods for the two dimensional compressible Navier-Stokes equations with nonperiodic boundary conditions
Period *Obligations*
06/01/80-05/31/81 FY80 \$38,695 TOTAL: \$38,695
Prin Invest *NASA Tech Officer* *CASE Category*
Lakin, W. D. LARC/Harris, J. E. 21-Mathematics
Lustman, L. LARC/Bushnell, D. M.

NAG 1-47 **Old Dominion University** **4157**
A retargetable path pascal system for implementation on concurrent programs on 16-bit microcomputers
Period *Obligations*
03/05/80-05/19/81 FY80: \$48,805 TOTAL: \$48,805
Prin Invest *NASA Tech Officer* *CASE Category*
Knapper, R. J. LARC/Foudriat, E. C.
LARC/Will, R. W. 22-Computer Science

NAG 1-63 **Old Dominion University** **4158**
Development of computer models for the prediction of large distorted reflector antenna characteristics
Period *Obligations*
05/16/80-05/15/81 FY80: \$34,981 TOTAL: \$34,981
Prin Invest *NASA Tech Officer* *CASE Category*
Moskowitz, S. M. LARC/Bailey, M. C. 45-Elec Engr

NAG 1-66 **Old Dominion University** **4159**
Energy environment study
Period *Obligations*
05/16/80-11/15/80 FY80: \$22,294 TOTAL: \$22,294
Prin Invest *NASA Tech Officer* *CASE Category*
Strangways, R. S. LARC/Batten, B. G. 72-Economics
Qureshi, U. A.

NAG 1-96 **Old Dominion University** **4160**
Boundary layer receptivity
Period *Obligations*
08/01/80-07/31/81 FY80: \$49,585 TOTAL: \$49,585
Prin Invest *NASA Tech Officer* *CASE Category*
Grosch, C. E. LARC/Bushnell, D. M. 41-Aero Engr
LARC/Hefner, J. N.

NAG 1-102 **Old Dominion University** **4161**
Control of precision-pointed structures mounted on flexible space platforms
Period *Obligations*
02/15/81-02/14/82 FY80: \$54,989 TOTAL: \$54,989
Prin Invest *NASA Tech Officer* *CASE Category*
Goglia, G. L. LARC/Hamer, H. A. 49-Engr, NEC
Joshi, S. M.

NAS 1-14193 **Old Dominion University** **4162**
Research in physical and life sciences
Period *Obligations*
10/01/75-09/30/78 FY80: TOTAL: \$632,791
Prin Invest *NASA Tech Officer* *CASE Category*
Maygarden, E. M. LARC/Anderson, A. F. 99-Multi-Discip

NAS 1-15648 **Old Dominion University** **4163**
Research in aerodynamics and related fields
Period *Obligations*
12/13/78 12/12/81 FY80: \$212,684 TOTAL: \$380,372
Prin Invest *NASA Tech Officer* *CASE Category*
Unavailable LARC/Erickson, W. D. 41-Aero Engr
LARC/Duberg, J. E.

NAS 1-15930 **Old Dominion University** **4164**
Scramjet inlet analysis
Period *Obligations*
11/01/79-01/15/82 FY80: \$93,797 TOTAL: \$93,797
Prin Invest *NASA Tech Officer* *CASE Category*
Tiwar, S. N. LARC/Drummond, J. P. 41-Aero Engr
Kumar, A. LARC/Beach, H. L.

NCC 1-2 **Old Dominion University** **4165**
Measurements of the global distribution of carbon monoxide in the troposphere
Period *Obligations*
04/01/79-12/31/81 FY80: \$94,259 TOTAL: \$171,184
Prin Invest *NASA Tech Officer* *CASE Category*
Kindle, E. C. LARC/Reichle, H. G., Jr. 31-Atmos Sci
Condon, E. P. LARC/Beck, S. M.

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NCC 1-9 Old Dominion University 4166
Wind tunnel studies of advanced cargo aircraft concepts
Period Obligations
06/22/79-06/21/80 FY80: TOTAL: \$60,538
Prin Invest NASA Tech Officer CASE Category
Goglia, G. L. LARC/Peterson, J. B. 41-Aero Engr
Rao, D. M.

NCC 1-26 Old Dominion University 4167
Application of photo-orthotropic elasticity to to plane problems in composites
Period Obligations
11/01/79-08/31/81 FY80: \$30,622 TOTAL: \$30,622
Prin Invest NASA Tech Officer CASE Category
Prabhakaran, R. LARC/Cooper, P. A. 42-Astro Engr

NCC 1-28 Old Dominion University 4168
Application of advanced lidar techniques for atmospheric remote sensing
Period Obligations
12/15/79-12/14/80 FY80: \$92,763 TOTAL: \$92,763
Prin Invest NASA Tech Officer CASE Category
Kindle, E. C. LARC/Browell, E. V. 31-Atmos Sci
LARC/Carter, A. F.

NCC 1-30 Old Dominion University 4169
Coupled radiative-chemical studies of the Earth's troposphere
Period Obligations
12/01/79-11/30/80 FY80: \$17,942 TOTAL: \$17,942
Prin Invest NASA Tech Officer CASE Category
Tiwari, S. N. LARC/Levine, J. S. 31-Atmos Sci

NCC 1-32 Old Dominion University 4170
Multicolor lidar system research
Period Obligations
12/15/79-12/14/80 FY80: \$73,015 TOTAL: \$73,015
Prin Invest NASA Tech Officer CASE Category
Copeland, G. E. LARC/Browell, E. V. 13-Physics
LARC/Carter, A. F.

NCC 1-34 Old Dominion University 4171
Development of data processing
Period Obligations
01/22/80-01/21/81 FY80: \$164,163 TOTAL: \$164,163
Prin Invest NASA Tech Officer CASE Category
Kindle, E. C. LARC/Reichle, H. G. 39-Env Sci, NEC
Casas, J. C. LARC/Wallio, H. A.

NCC 1-42 Old Dominion University 4172
A study of physical processes for space-radiation protection
Period Obligations
06/04/80-06/18/81 FY80: \$38,163 TOTAL: \$38,163
Prin Invest NASA Tech Officer CASE Category
Khandelwal, G. S. LARC/Wilson, J. W. 19-Phys Sci, NEC

NGR 47-003-052 Old Dominion University 4173
Graduate research program in aeronautics and air transportation
Period Obligations
05/12/71-08/31/82 FY80: \$50,000 TOTAL: \$683,922
Prin Invest NASA Tech Officer CASE Category
Roberts, A. S. LARC/Erickson, W. D. 41-Aero Engr

NGT 47-003-028 Old Dominion University 4174
Summer faculty fellowship program in engineering systems design
Period Obligations
11/14/69-03/31/80 FY80: TOTAL: \$1,021,937
Prin Invest NASA Tech Officer CASE Category
McRee, G. J. HD-LU/Carter, C. H. 49-Engr, NEC

NGT 47-003-029 Old Dominion University 4175
Summer faculty fellowship program in research
Period Obligations
11/14/69-03/31/80 FY80: TOTAL: \$1,154,656
Prin Invest NASA Tech Officer CASE Category
Goglia, G. L. HD-LU/Carter, C. H. 49-Engr, NEC

NSG 1079 Old Dominion University 4176
Optimal adaptive wind tunnel control
Period Obligations
09/01/74-11/30/79 FY80: TOTAL: \$121,786
Prin Invest NASA Tech Officer CASE Category
Tcheng, P. L. LARC/Tripp, J. S. 45-Elec Engr

NSG 1167 Old Dominion University 4177
The structural behavior of advanced composite materials
Period Obligations
06/01/75-08/15/81 FY80: TOTAL: \$135,490
Prin Invest NASA Tech Officer CASE Category
Thornton, E. A. LARC/Dixon, S. C. 41-Aero Engr
Fallon, D. J.

NSG 1177 Old Dominion University 4178
Experimental and analytical studies in fluidics
Period Obligations
05/01/75-02/28/82 FY80: TOTAL: \$106,733
Prin Invest NASA Tech Officer CASE Category
Rogerson, A. C. LARC/Hellbaum, R. F. 45-Elec Engr
Brown, N. B., Jr

NSG 1271 Old Dominion University 4179
Space shuttle experiments studies
Period Obligations
03/01/76-02/28/81 FY80: \$174,969 TOTAL: \$718,530
Prin Invest NASA Tech Officer CASE Category
Brock, F. J. LARC/Melli, L. T. 13-Physics
Hueser, J. E.

NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)

NSG 1321 **Old Dominion University** **4180**
Concepts for structurally compatible thermal finite elements
Period *Obligations*
09/01/76-12/31/80 **FY80: \$41,772** **TOTAL: \$124,021**
Prin Invest *NASA Tech Officer* *CASE Category*
Thornton, E. A. LARC/Wieting, A. R. 49-Engr, NEC
Dechaumphai, P.

NSG 1331 **Old Dominion University** **4181**
Antenna design and development for microwave subsystem experiments for the terminal configured vehicle project
Period *Obligations*
08/01/76-12/31/79 **FY80:** **TOTAL: \$61,617**
Prin Invest *NASA Tech Officer* *CASE Category*
Becher, J. LARC/Campbell, T. G. 45-Elec Engr
Cohen, N. V. LARC/Young, W. P.

NSG 1341 **Old Dominion University** **4182**
Science and software support for spacecraft solar occultation experiments
Period *Obligations*
10/01/76-09/30/79 **FY80:** **TOTAL: \$40,514**
Prin Invest *NASA Tech Officer* *CASE Category*
Chu, W. P. LARC/McMaster, L. R. 31-Atmos Sci
Becher, J. LARC/McCormick, M. P.

NSG 1357 **Old Dominion University** **4183**
Implementation of advanced Trefftz plane drag optimization technique in vortex lattice wing design program
Period *Obligations*
11/08/76-09/30/81 **FY80: \$78,546** **TOTAL: \$94,585**
Prin Invest *NASA Tech Officer* *CASE Category*
Kuhlman, J. M. LARC/Peterson, J. B., Jr. 41-Aero Engr

NSG 1379 **Old Dominion University** **4184**
Feasibility study of a microprocessor based oculometer system
Period *Obligations*
01/01/77-12/31/80 **FY80: \$63,016** **TOTAL: \$229,664**
Prin Invest *NASA Tech Officer* *CASE Category*
Varanasi, M. R. LARC/Gainer, P. A. 45-Elec Engr
LARC/Waller, M. C.

NSG 1393 **Old Dominion University** **4185**
Computational solution of atmospheric chemistry problems
Period *Obligations*
06/01/77-05/15/82 **FY80: \$51,753** **TOTAL: \$144,044**
Prin Invest *NASA Tech Officer* *CASE Category*
Ake, R. L. LARC/Phillips, D. H. 12-Chemistry
Jafri, J. A. LARC/Rogowski, R. S.

NSG 1395 **Old Dominion University** **4186**
Data reduction analysis and application technique development for atmospheric trace gas constituents derived from remote sensors on satellite or airborne platforms
Period *Obligations*
02/14/77-06/30/80 **FY80:** **TOTAL: \$222,332**
Prin Invest *NASA Tech Officer* *CASE Category*
Kindle, E. C. LARC/Beck, S. M. 31-Atmos Sci
Casas, J. C. LARC/Reichle, H. G.

NSG 1464 **Old Dominion University** **4187**
Effects of angle-of-attack on the coupled radiative and convective heat transfer about blunt planetary entry bodies
Period *Obligations*
11/01/77-02/29/80 **FY80:** **TOTAL: \$77,364**
Prin Invest *NASA Tech Officer* *CASE Category*
Tiwari, S. N. LARC/Graves, R. A., Jr. 41-Aero Engr
Kumar, A.

NSG 1477 **Old Dominion University** **4188**
Investigation of potential of differential absorption lidar techniques for remote sensing of atmospheric pollutants
Period *Obligations*
11/15/77-06/14/80 **FY80:** **TOTAL: \$261,690**
Prin Invest *NASA Tech Officer* *CASE Category*
Kindle, E. C. LARC/Browell, E. V. 39-Env Sci, NEC

NSG 1480 **Old Dominion University** **4189**
Comparative study of flare control laws
Period *Obligations*
12/15/77-08/14/81 **FY80: \$38,922** **TOTAL: \$110,921**
Prin Invest *NASA Tech Officer* *CASE Category*
Tcheng, P. LARC/Creedon, J. F. 41-Aero Engr
Nadkarni, A. A. LARC/Ostroff, A. J.

NSG 1491 **Old Dominion University** **4190**
Hot wire laser Doppler velocimeter and mean measurements on flow phenomena induced by suction through perforated surfaces
Period *Obligations*
02/01/78-01/31/80 **FY80:** **TOTAL: \$60,857**
Prin Invest *NASA Tech Officer* *CASE Category*
Goghia, G. L. LARC/Bushnell, D. M. 41-Aero Engr
Wilkinson, S. LARC/Hefner, J. N.

NSG 1500 **Old Dominion University** **4191**
Investigation of the flow-phenomena around a Jovian entry body under chemical and radiative nonequilibrium conditions
Period *Obligations*
02/01/78-03/31/80 **FY80:** **TOTAL: \$35,334**
Prin Invest *NASA Tech Officer* *CASE Category*
Tiwari, S. N. LARC/Sutton, K. 49-Engr, NEC
LARC/Walberg, G. D.

NASA'S UNIVERSITY PROGRAM VIRGINIA (Continued)

NSG 1503 **Old Dominion University** **4192**
Cryogenic transonic tunnel modeling and flow control
Period *Obligations*
03/15/78-03/14/81 FY80: \$47,175 TOTAL: \$122,711
Prin Invest *NASA Tech Officer* *CASE Category*
Goglia, G. L. LARC/Kilgore, R. A. 41-Aero Engr
Balakrishna, S. LARC/Adcock, J. B.

NSG 1517 **Old Dominion University** **4193**
A numerical investigation of viscous slot flow
Period *Obligations*
04/15/78-11/30/80 FY80: \$26,143 TOTAL: \$57,353
Prin Invest *NASA Tech Officer* *CASE Category*
Cooke, C. H. LARC/Dwyer, D. L. 41-Aero Engr
LARC/South, J. C.

NSG 1521 **Old Dominion University** **4194**
Development of high strength and toughness 7000 series aluminum alloys
Period *Obligations*
05/01/78-11/15/79 FY80: TOTAL: \$34,000
Prin Invest *NASA Tech Officer* *CASE Category*
Cupschalk, S. G. LARC/Lisagor, W. B. 47-Materials Engr

NSG 1522 **Old Dominion University** **4195**
Radiative transfer models for the Earth radiation budget and climatic studies
Period *Obligations*
04/01/78-06/30/80 FY80: TOTAL: \$59,739
Prin Invest *NASA Tech Officer* *CASE Category*
Tiware, S. N. LARC/Suttles, J. T. 31-Atmos Sci
LARC/Young, G. R.

NSG 1560 **Old Dominion University** **4196**
Development of a nonlinear vortex method
Period *Obligations*
09/01/78-09/30/80 FY80: TOTAL: \$58,230
Prin Invest *NASA Tech Officer* *CASE Category*
Kandil, O. A. LARC/Yates, E. C., Jr. 41-Aero Engr
LARC/Young, W. H.

NSG 1561 **Old Dominion University** **4197**
Investigation of aerodynamic characteristics of wings having vortex flow using different numerical codes
Period *Obligations*
09/01/78-08/31/81 FY80: TOTAL: \$93,079
Prin Invest *NASA Tech Officer* *CASE Category*
Goglia, G. L. LARC/Lamar, J. E. 41-Aero Engr
Reddy, C. S. LARC/Polhamus, E. C.

NSG 1563 **Old Dominion University** **4198**
Scale models for the improvement of flow patterns of a low speed tunnel
Period *Obligations*
09/15/78-04/30/81 FY80 \$28,708 TOTAL \$79,832
Prin Invest *NASA Tech Officer* *CASE Category*
Barna, P. S. LARC/Margason, R. J. 41-Aero Engr

NSG 1568 **Old Dominion University** **4199**
Theoretical study of solar pumped lasers
Period *Obligations*
12/15/78-10/31/80 FY80: \$26,061 TOTAL: \$46,059
Prin Invest *NASA Tech Officer* *CASE Category*
Harries, W. L. LARC/Wilson, J. W. 13-Physics

NSG 1618 **Old Dominion University** **4200**
Free stream disturbances, continuous eigenfunction boundary layer in stability and transition
Period *Obligations*
05/16/79-09/15/80 FY80: TOTAL: \$24,904
Prin Invest *NASA Tech Officer* *CASE Category*
Grosch, C. E. LARC/Bushnell, D. M. 41-Aero Engr
LARC/Hefner, J. N.

NSG 1634 **Old Dominion University** **4201**
Investigation of the effect of standing pressure waves on laminated transitional boundary layer flow
Period *Obligations*
09/01/79-08/31/80 FY80: TOTAL: \$20,071
Prin Invest *NASA Tech Officer* *CASE Category*
Ash, R. L. LARC/Hefner, J. N. 41-Aero Engr
LARC/Bushnell, D. M.

NSG 1645 **Old Dominion University** **4202**
Application of stability theory to laminar flow control
Period *Obligations*
09/01/79-08/31/81 FY80: \$53,395 TOTAL: \$98,037
Prin Invest *NASA Tech Officer* *CASE Category*
Goglia, G. L. LARC/Harvey, W. D. 41-Aero Engr
Elhady, N. M.

NSG 1649 **Old Dominion University** **4203**
Dynamic identification for control of large space structures
Period *Obligations*
10/01/79-10/31/80 FY80: TOTAL: \$36,807
Prin Invest *NASA Tech Officer* *CASE Category*
Ibrahim, S. R. LARC/Card, M. F. 46-Mech Engr

NSG 1650 **Old Dominion University** **4204**
Design of multi-variable feedback control systems via spectral assignment
Period *Obligations*
09/01/79-07/31/81 FY80: \$48,464 TOTAL: \$88,548
Prin Invest *NASA Tech Officer* *CASE Category*
Liberty, S. R. LARC/Armstrong, E. S. 41-Aero Engr
Mielke, R. R. LARC/Price, D. B.
Tung, L. J.

NSG 1655 **Old Dominion University** **4205**
Airborne antenna pattern calculations
Period *Obligations*
11/01/79-10/31/81 FY80: \$21,473 TOTAL: \$41,574
Prin Invest *NASA Tech Officer* *CASE Category*
Mielke, R. R. LARC/Gilreath, M. C. 45-Elec Engr

NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)

NSG 5053 **Old Dominion University** **4206**
Radiation investigations of optical and electronic components used
in astronomical satellite studies

Period	Obligations	
02/17/75-07/31/80	FY80: TOTAL: \$177,747	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Becher, J.	GSFC/Fowler, W.	19-Phys Sci, NEC
Kernell, R. L.		

NSG 5289 **Old Dominion University** **4207**
Radiation effects studies for the high resolution spectrograph

Period	Obligations	
07/10/78-01/09/81	FY80: \$51,796 TOTAL: \$156,796	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Becher, J.	GSFC/Fowler, W.	13-Physics
Kernell, R. L.		

NAG 1-43 **University of Virginia** **4208**
The development of the minicomputer/global bus interface for
the finite element machine

Period	Obligations	
03/01/80-11/30/80	FY80: \$13,158 TOTAL: \$13,158	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Aylor, J. H.	LARC/Loendorf, D. D.	45-Elec Engr
	LARC/Sawyer, F. L.	

NAG 1-46 **University of Virginia** **4209**
Numerical algorithms for finite element computations on arrays
of microprocessors

Period	Obligations	
03/01/80-02/28/81	FY80: \$20,555 TOTAL: \$20,555	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ortega, J. M.	LARC/Loendorf, D. D.	49-Engr, NEC
	LARC/Sawyer, P. L.	

NAG 5-61 **University of Virginia** **4210**
Star formation in blue compact dwarf galaxies

Period	Obligations	
06/01/80-05/31/81	FY80: \$4,170 TOTAL: \$4,170	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Thuan, T. X.	GSFC/Bogges, A.	11-Astronomy

NAG 5-102 **University of Virginia** **4211**
Kinematic analysis of tropical cyclones using satellite wind
measurements

Period	Obligations	
09/01/80-11/30/80	FY80: \$4,833 TOTAL: \$4,833	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Frank, W. M.	GSFC/Rodgers, L. B.	31-Atmos Sci

NAG 8-308 **University of Virginia** **4212**
X-ray observations of southern high-redshift clusters

Period	Obligations	
02/18/80-02/17/81	FY80: \$3,398 TOTAL: \$3,398	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sarazin, C. L.	MSFC/White, R.	11-Astronomy

NAG 8-375 **University of Virginia** **4213**
Observe time in guest investigator program for X-ray observations
of two remarkable group of quasars and X-ray observations of
selected Area 57 and X-ray observations of blue compact dwarf
galaxies

Period	Obligations	
09/21/80-09/20/81	FY80: \$9,447 TOTAL: \$9,447	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Thuan, T. X.	MSFC/Stone, J. F.	11-Astronomy

NAS 1-14862 **University of Virginia** **4214**
Interactive software invocation system

Period	Obligations	
04/01/77-10/15/79	FY80: TOTAL: \$143,438	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Berman, W. J.	LARC/Will, R. W.	22-Computer Science
	LARC/Straeter, T. A.	

NAS 1-14908 **University of Virginia** **4215**
Air transportation systems research

Period	Obligations	
05/02/77-05/02/80	FY80: \$13,032 TOTAL: \$211,690	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kuhlthau, A. R.	LARC/Conner, D. W.	49-Engr, NEC
	LARC/Brissenden, R. F.	

NAS 2-10195 **University of Virginia** **4216**
Effect of weightlessness on body mass and organ mass and
composition in the rat

Period	Obligations	
02/21/79-08/31/80	FY80: TOTAL: \$12,177	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pitts, G. C.	ARC/Souza, K. A.	59-Life Sci, NEC

NAS 5-22346 **University of Virginia** **4217**
Design and application of a one meter UV-optical telescope for
spacelab astronomy missions

Period	Obligations	
04/29/75-06/30/81	FY80: \$4,000 TOTAL: \$37,468	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
OConnell, R. W.	GSFC/Johnson, G.	11-Astronomy

NAS 5-24218 **University of Virginia** **4218**
Research study on mixer diodes for submillimeter applications

Period	Obligations	
06/23/77-02/28/81	FY80: \$36,361 TOTAL: \$100,909	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mattauch, R. J.	GSFC/Lamb, G. M.	49-Engr, NEC
	GSFC/Buhl, D.	

NAS 5-25634 **University of Virginia** **4219**
Study of the trellis phase codes for improved power/bandwidth
efficiency in satellite communications

Period	Obligations	
04/11/79-04/10/81	FY80: TOTAL: \$84,511	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilson, S. G.	GSFC/Kahle, D. R.	45-Elec Engr

NASA'S UNIVERSITY PROGRAM

VIRGINIA (Continued)

NAS 5-26011 University of Virginia 4220
Investigation for search and rescue Doppler processor development

Period	Obligations	
01/29/80-10/29/80	FY80: \$18,000	TOTAL: \$18,000
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Wilson, S. G.	GSFC/Kahle, D. R.	45-Elec Engr

NAS 5-26110 University of Virginia 4221
Spacelab/ultraviolet imaging telescope astronomical investigations

Period	Obligations	
03/25/80-03/24/82	FY80: \$13,012	TOTAL: \$13,012
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
OConnell, R. W.	GSFC/Stecher, T. P.	11-Astronomy

NAS 8-31951 University of Virginia 4222
Space shuttle main engine whirl problem

Period	Obligations	
04/19/76-12/17/80	FY80: \$80,000	TOTAL: \$351,245
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Gunter, E. J.	MSFC/Clark, W. D	46-Mech Engr
	MSFC/Goetz, O. K.	

NAS 8-33327 University of Virginia 4223
X-ray observations of selected areas

Period	Obligations	
03/26/79-06/30/81	FY80:	TOTAL \$4,915
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Thuan, T. X	MSFC/Jones, J. B., Jr.	11-Astronomy
Owen, F. M.		

NAS 8-33348 University of Virginia 4224
X-ray observations of M51 and M58 and the dynamics of spiral galaxies

Period	Obligations	
04/16/79-07/15/80	FY80:	TOTAL: \$2,000
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Sarazin, C. L.	MSFC/Jones, J. B., Jr.	11-Astronomy
Roberts, W. W., Jr		

NGP 47-005-172 University of Virginia 4225
Interpretation of surface features and surface processes on Mars

Period	Obligations	
03/03/71-03/30/79	FY80:	TOTAL \$244,693
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Howard, A	HD-SL/Dwornik, S.E.	32-Geological Sci
	HD-SL/Boyce, J. M	

NSG 1335 University of Virginia 4226
Investigation of numerical methods for use in real-time simulation

Period	Obligations	
10/01/76-12/31/79	FY80:	TOTAL: \$58,085
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Brown, R. L., Jr.	LARC/Bowles, R. L	21-Mathematics

NSG 1509 University of Virginia 4227
Evaluating and minimizing noise impact due to aircraft flyover

Period	Obligations	
04/01/78-03/31/81	FY80: \$38,077	TOTAL: \$142,186
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Cook, G.	LARC/Deloach, R.	69-Psych, NEC
Jacobson, I. D.		

NSG 1567 University of Virginia 4228
Investigation of direct integrated optics modulators

Period	Obligations	
11/01/78-11/30/80	FY80: \$40,943	TOTAL: \$77,936
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Batchman, T. E.	LARC/Beatty, M. E.	13-Physics

NSG 1599 University of Virginia 4229
Polymorphic reconfigurable emulator for parallel simulation

Period	Obligations	
03/01/79-03/31/80	FY80:	TOTAL: \$68,176
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Parrish, E. A.	LARC/Ashworth, B. R	45-Elec Engr
McVey, E. S.	LARC/Bowles, R. L.	
Cook, G		

NSG 1652 University of Virginia 4230
The terrestrial growth of lead-tin-telluride by techniques related to low-gravity growth

Period	Obligations	
09/01/79-08/31/81	FY80: \$25,000	TOTAL: \$51,256
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Jesser, W. A.	LARC/Enpp, A. L.	47-Materials Engr
	LARC/Crouch, R. K	

NSG 2225 University of Virginia 4231
Mammalian body size, composition and growth as influenced by hypokinesia

Period	Obligations	
04/01/77-03/31/81	FY80: \$26,000	TOTAL: \$101,000
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Pitts, G. C.	ARC/Holton, E. M.	51-Biological Sci

NSG 3177 University of Virginia 4232
A research proposal for the investigation of rotor transient analysis by the modal method

Period	Obligations	
02/15/80-02/14/81	FY80: \$39,212	TOTAL: \$110,172
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Barrett, L. E.	LERC/Kascak, A. F.	46-Mech Engr
Gunter, E. J.	LERC/Fleming, D. P.	
Allaire, P. E.		

NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)

NSG 3242 **University of Virginia** **4233**
Investigation of the formation of diffusion barrier materials on silicon carbide filaments and their incorporation into metal matrix composites
Period *Obligations*
01/03/79-01/01/81 FY80: \$39,600 TOTAL \$79,206
Prin Invest *NASA Tech Officer* *CASE Category*
Wawner, F. E., Jr LERC/Behrendt, D. R
LERC/Grimes, H. H. 47-Materials Engr

NSG 7364 **University of Virginia** **4234**
Observations of the satellites of the outer planets
Period *Obligations*
07/01/78-06/30/81 FY80: \$19,999 TOTAL \$80,853
Prin Invest *NASA Tech Officer* *CASE Category*
Ianna, P. A HD-SI/Brunk, W. I 11-Astronomy
HD-SI/Murphy, R. I

NSG 7572 **University of Virginia** **4235**
Study of layered deposits and paleoclimates on Mars
Period *Obligations*
04/01/79-09/30/80 FY80: \$32,899 TOTAL \$49,578
Prin Invest *NASA Tech Officer* *CASE Category*
Howard, A HD-SI/Boyce, J. M 32-Geological Sci
HD-SI/Quaide, W. I

NAS 9-16046 **Virginia Commonwealth University** **4236**
Influence of weightlessness upon automatic cardiovascular control
Period *Obligations*
01/17/80-10/31/80 FY80: \$32,391 TOTAL \$32,391
Prin Invest *NASA Tech Officer* *CASE Category*
Eckberg, D. I JSC/Kirby, R 59-Life Sci, NEC

NSG 9063 **Virginia Commonwealth University** **4237**
Carotid arterial baroreflex mechanisms
Period *Obligations*
10/01/77-12/31/80 FY80: \$40,000 TOTAL \$119,102
Prin Invest *NASA Tech Officer* *CASE Category*
Eckberg, D. I JSC/Hull, W. E 56-Medical Sciences

NSG 7355 **Virginia Military Institute** **4238**
Oxidation-reduction processes in synthetic silicate melts
Period *Obligations*
06/01/77-12/31/81 FY80: \$22,050 TOTAL \$77,332
Prin Invest *NASA Tech Officer* *CASE Category*
Schreiber, H. D HD-SI/Quaide, W. I 32-Geological Sci
HD-SI/French, B. M

DFN 3-65 **Va Polytechnic Inst & St Univ** **4239**
Electronically computed dc motor for electric passenger vehicles
Period *Obligations*
09/13/78-06/27/81 FY80: \$146,256 TOTAL \$306,032
Prin Invest *NASA Tech Officer* *CASE Category*
Demerdash, N. A LERC/Maslowski, E. A 45-Elec Engr
Lee, E. C

NAG 1-7 **Va Polytechnic Inst & St Univ** **4240**
The reduced order model problem in distributed parameter systems adaptive identification and control
Period *Obligations*
11/01/79-10/31/80 FY80: \$29,972 TOTAL \$29,972
Prin Invest *NASA Tech Officer* *CASE Category*
Johnson, C. R LARC/Montgomery, R. C. 42-Astro Engr

NAG 1-52 **Va Polytechnic Inst & St Univ** **4241**
Study of altitude transition in aircraft energy climbs
Period *Obligations*
04/01/80-03/31/81 FY80: \$31,920 TOTAL \$31,920
Prin Invest *NASA Tech Officer* *CASE Category*
Kelly, H. J LARC/Price, D. B 41-Aero Engr
Cliff, E. M.

NAG 1-53 **Va Polytechnic Inst & St Univ** **4242**
Space shuttle windward side viscous flowfield predictions
Period *Obligations*
04/01/80-10/31/80 FY80: \$39,718 TOTAL \$39,718
Prin Invest *NASA Tech Officer* *CASE Category*
Lewis, C. H LARC/Zoby, E. V 41-Aero Engr
Szema, K. Y LARC/Hamilton, H. H

NAG 1-68 **Va Polytechnic Inst & St Univ** **4243**
Optical fiber interferometer for the study of ultrasonic waves in composite materials
Period *Obligations*
10/01/80-09/30/81 FY80: \$30,536 TOTAL \$30,536
Prin Invest *NASA Tech Officer* *CASE Category*
Claus, R. O LARC/Cantrell, J. H 13-Physics
LARC/Heyman, J. S

NAG 1-78 **Va Polytechnic Inst & St Univ** **4244**
Nonequilibrium material effects on behavior of polymeric composite matrices and their related composites
Period *Obligations*
07/01/80-06/30/81 FY80: \$51,500 TOTAL \$51,500
Prin Invest *NASA Tech Officer* *CASE Category*
Wilkes, G. I LARC/Price, H. I 47-Materials Engr
LARC/Sikes, G. F

NAG 1-80 **Va Polytechnic Inst & St Univ** **4245**
Preliminary demonstration of a robust controller design method
Period *Obligations*
06/15/80-11/14/80 FY80: \$10,192 TOTAL \$10,192
Prin Invest *NASA Tech Officer* *CASE Category*
Anderson, E. R LARC/Newsom, J. R 41-Aero Engr

NAG 1-89 **Va Polytechnic Inst & St Univ** **4246**
Chemical modification of semiconductor surfaces
Period *Obligations*
09/01/80-08/31/81 FY80: \$19,806 TOTAL \$19,806
Prin Invest *NASA Tech Officer* *CASE Category*
Finklea, H. O LARC/Byvik, C. E 19-Phys Sci, NEC
LARC/Conway, E. J

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VIRGINIA (Continued)

NAG 1-101 **Va Polytechnic Inst & St Univ** **4247**
Shuttle nozzle flowfield
Period *Obligations*
08/12/80-11/11/80 FY80: \$25,204 TOTAL: \$25,204
Prin Invest *NASA Tech Officer* *CASE Category*
Lewis, C. H. LARC/Mellu, L. T. 41-Aero Engr

NAG 2-3 **Va Polytechnic Inst & St Univ** **4248**
Weld microstructure, stress state and the effect of hydrogen on fatigue crack initiation in X-65 steel
Period *Obligations*
11/01/79-01/31/80 FY80: \$43,292 TOTAL: \$43,292
Prin Invest *NASA Tech Officer* *CASE Category*
Louthan, M. R. ARC/Nelson, H. G. 47-Materials Engr
McNitt, R. P.

NAG 2-17 **Va Polytechnic Inst & St Univ** **4249**
Comparative evaluation of workload estimation techniques in piloting tasks
Period *Obligations*
01/15/80-01/14/81 FY80: \$74,527 TOTAL: \$74,527
Prin Invest *NASA Tech Officer* *CASE Category*
Wierwille, W. W. ARC/Wempe, T. E. 99-Multi-Discip

NAG 3-78 **Va Polytechnic Inst & St Univ** **4250**
Environmental degradation of engineering materials II
Period *Obligations*
01/01/81-12/31/81 FY80: \$3,385 TOTAL: \$3,385
Prin Invest *NASA Tech Officer* *CASE Category*
Louthan, M. R. LERC/Stephens, J. R. 47-Materials Engr
McNitt, R. P.
Sisson, R. D., Jr.

NAG 3-81 **Va Polytechnic Inst & St Univ** **4251**
Input filter compensation for switching regulators
Period *Obligations*
10/01/80-09/30/81 FY80: \$35,090 TOTAL: \$35,090
Prin Invest *NASA Tech Officer* *CASE Category*
Lee, F. C. LERC/Kolecki, J. C. 45-Elec Engr

NAG 3-99 **Va Polytechnic Inst & St Univ** **4252**
High power transistor evaluations for electric vehicle applications
Period *Obligations*
09/15/80-09/14/82 FY80: \$174,822 TOTAL: \$174,822
Prin Invest *NASA Tech Officer* *CASE Category*
Lee, F. C. LERC/Maslowski, F. A. 45-Elec Engr
Chen, D. D.

NAG 8-314 **Va Polytechnic Inst & St Univ** **4253**
X ray emission from optically-quiet compact radio sources, lacertae objects and from bright optically selected quasars under the high energy astronomical observatory
Period *Obligations*
02/01/80-07/31/81 FY80: \$2,895 TOTAL: \$2,895
Prin Invest *NASA Tech Officer* *CASE Category*
ODell, S. L. MSFC/Jones, J. B. 11-Astronomy
Ledden, J. F.
Condon, J. J.

NAG 8-348 **Va Polytechnic Inst & St Univ** **4254**
Coordinated high energy astronomical observatory-2 observations of low-frequency variable radio sources
Period *Obligations*
06/20/80-06/19/81 FY80: \$7,475 TOTAL: \$7,475
Prin Invest *NASA Tech Officer* *CASE Category*
ODell, S. L. MSFC/Swearingen, J. C. 11-Astronomy
Dennison, B. K.

NAS 1-15080 **Va Polytechnic Inst & St Univ** **4255**
Research in the area of physical sciences
Period *Obligations*
08/25/77-08/24/80 FY80: \$40,846 TOTAL: \$217,261
Prin Invest *NASA Tech Officer* *CASE Category*
Unavailable LARC/Anderson, A. F. 99-Multi-Discip
LARC/Royall, J. F.

NAS 5-22577 **Va Polytechnic Inst & St Univ** **4256**
Communications link characterization study
Period *Obligations*
09/08/76-04/07/85 FY80: \$354,303 TOTAL: \$866,175
Prin Invest *NASA Tech Officer* *CASE Category*
Bostian, C. W. GSFC/Hirschmann, I. 45-Elec Engr
Stutzman, W. I.
Wiley, P. H.

NAS 5-25839 **Va Polytechnic Inst & St Univ** **4257**
Develop micro and macro texture measures for lands at scenes
Period *Obligations*
09/07/79-06/06/80 FY80: TOTAL: \$40,184
Prin Invest *NASA Tech Officer* *CASE Category*
Havalek, R. M. GSFC/Argentiero, P. D. 31-Atmos Sci

NAS 5-25935 **Va Polytechnic Inst & St Univ** **4258**
Applications of LANDSAT imaging to state information systems
Period *Obligations*
10/22/79-10/22/80 FY80: \$9,500 TOTAL: \$9,500
Prin Invest *NASA Tech Officer* *CASE Category*
Giles, R. H. GSFC/Gervin, J. C. 99-Multi-Discip

NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)

NAS 5-26199 **Va Polytechnic Inst & St Univ** **4259**
Services to support a demonstration project to determine the usefulness of LANDSAT data to Virginia's regional land use planning and resource management programs
Period *Obligations*
06/26/80-11/25/80 FY80: \$3,995 **TOTAL: \$3,995**
Prin Invest *NASA Tech Officer* *CASE Category*
Munday, J GSFC/Gervin, J. C. 39-Env Sci, NEC

NAS 5-26276 **Va Polytechnic Inst & St Univ** **4260**
Applicability of the Massive Parallel Processor (MPP) to the utilization of ecological and landuse models
Period *Obligations*
08/15/80-08/14/81 FY80: \$62,731 **TOTAL: \$62,731**
Prin Invest *NASA Tech Officer* *CASE Category*
Haralick, R GSFC/Argentiero, P. D.

NAS 8-33359 **Va Polytechnic Inst & St Univ** **4261**
Magnetic fields in cluster of galaxies
Period *Obligations*
05/25/79-05/24/80 FY80 **TOTAL: \$6,988**
Prin Invest *NASA Tech Officer* *CASE Category*
Dennison, B. K. MSFC/Jones, J. B., Jr. 11-Astronomy

NAS 8-33449 **Va Polytechnic Inst & St Univ** **4262**
Research study: Strength and constitutive behavior of soils in a very low gravitational field
Period *Obligations*
07/16/79-03/19/80 FY80 **TOTAL: \$22,052**
Prin Invest *NASA Tech Officer* *CASE Category*
Storre, S. MSFC/Costes, N. C. 32-Geological Sci

NASW 3357 **Va Polytechnic Inst & St Univ** **4263**
Dual-polarization space diversity measurements with the sirio satellite
Period *Obligations*
12/16/79-12/16/80 FY80: \$30,000 **TOTAL: \$30,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Krebs, A. H. HD-SC/Freibaum, J. 31-Atmos Sci
HD-SC/Ippolito, L. J.

NCC 1-4 **Va Polytechnic Inst & St Univ** **4264**
Dynamics and control of large flexible spacecraft
Period *Obligations*
05/01/79-12/31/80 FY80: **TOTAL: \$49,992**
Prin Invest *NASA Tech Officer* *CASE Category*
Meirovitch, I. LARC/Montgomery, R. C. 42-Astro Engr

NCC 1-10 **Va Polytechnic Inst & St Univ** **4265**
Environmental effects on advanced aerospace materials
Period *Obligations*
08/01/79-11/30/81 FY80: \$141,420 **TOTAL: \$230,837**
Prin Invest *NASA Tech Officer* *CASE Category*
Unnam, J. LARC/Tenney, D. R. 39-Env Sci, NEC
Houska, C. R. LARC/Brewer, W. D.

NCC 1-15 **Va Polytechnic Inst & St Univ** **4266**
Composite materials research and education
Period *Obligations*
09/01/79-08/31/81 FY80: \$207,223 **TOTAL: \$371,407**
Prin Invest *NASA Tech Officer* *CASE Category*
Herakovich, C. T. LARC/Davis, J. D., Jr. 49-Engr, NEC

NCC 1-20 **Va Polytechnic Inst & St Univ** **4267**
Graduate-study research program in aeronautics and air transportation systems
Period *Obligations*
07/01/79-08/31/81 FY80: **TOTAL: \$79,991**
Prin Invest *NASA Tech Officer* *CASE Category*
Hobeika, A. G. LARC/Erickson, W. D. 41-Aero Engr

NCC 2-71 **Va Polytechnic Inst & St Univ** **4268**
The accelerated characterization of polymer based fiber reinforced composites
Period *Obligations*
10/01/80-09/30/81 FY80: \$65,719 **TOTAL: \$65,719**
Prin Invest *NASA Tech Officer* *CASE Category*
Brinson, H. F. ARC/Nelson, H. G. 47-Materials Engr
Morris, D. H.

NGL 47-004-067 **Va Polytechnic Inst & St Univ** **4269**
Measurement of the ground wind structure
Period *Obligations*
06/15/70-09/30/81 FY80: **TOTAL: \$568,375**
Prin Invest *NASA Tech Officer* *CASE Category*
Fieleman, H. W. WFC/Schmidlin, F. J. 31-Atmos Sci

NGT 47-004-800 **Va Polytechnic Inst & St Univ** **4270**
Computational study of leading edge vortex flaps graduate student researcher's program
Period *Obligations*
06/01/80-05/31/81 FY80: \$10,250 **TOTAL: \$10,250**
Prin Invest *NASA Tech Officer* *CASE Category*
Marchman, J. F. LARC/Campbell, J. F. 41-Aero Engr

NSG 1085 **Va Polytechnic Inst & St Univ** **4271**
Kinetics of the reactions of acid anhydrides with aromatic amines in aprotic solvents
Period *Obligations*
07/01/74-01/31/81 FY80 **TOTAL: \$93,519**
Prin Invest *NASA Tech Officer* *CASE Category*
Mason, J. G. LARC/Young, P. R. 12-Chemistry

NSG 1124 **Va Polytechnic Inst & St Univ** **4272**
A fundamental approach to adhesion: Synthesis surface analysis, thermodynamics and mechanics
Period *Obligations*
12/01/74-02/28/81 FY80: \$79,987 **TOTAL: \$422,781**
Prin Invest *NASA Tech Officer* *CASE Category*
Wightman, J. P. LARC/Progar, D. J. 12-Chemistry
LARC/Nelson, J. B.

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VIRGINIA (Continued)

NSG 1254 **Va Polytechnic Inst & St Univ** **4273**
Short beam shear tests of polymeric laminates and unidirectional composites

Period	Obligations	
10/01/75-11/30/79	FY80: TOTAL: \$79,994	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Stinchcomb, W. W.	LARC/Hoffman, F. L.	46-Mech Engr
Henneke, F. G.	LARC/Deaton, J. W.	

NSG 1255 **Va Polytechnic Inst & St Univ** **4274**
Application of stability theory to laminar flow control

Period	Obligations	
10/01/75-10/31/81	FY80: \$115,000 TOTAL: \$347,400	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Nayfeh, A. H.	LARC/Harris, J. E.	41-Aero Engr
	LARC/Hefner, J. W.	

NSG 1262 **Va Polytechnic Inst & St Univ** **4275**
Subsonic steady and unsteady aerodynamic loads missiles and aircraft

Period	Obligations	
12/01/75-02/28/81	FY80: \$30,000 TOTAL: \$100,141	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Mook, D. T.	LARC/Yates, E. C., Jr.	41-Aero Engr
Nayfeh, A. H.		

NSG 1354 **Va Polytechnic Inst & St Univ** **4276**
Study of an automatic trajectory following control system

Period	Obligations	
10/15/76-09/14/81	FY80 \$14,556 TOTAL \$113,244	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Vanlandingham, H. F.	LARC/Creedon, J. F.	41-Aero Engr
Moose, R. I.	LARC/Hueschen, R. M.	

NSG 1428 **Va Polytechnic Inst & St Univ** **4277**
The incorporation of metal ions polyimides

Period	Obligations	
07/01/77-05/31/81	FY80: \$20,003 TOTAL \$129,754	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Taylor, L. T.	LARC/St.Clair, A. K.	12-Chemistry
	LARC/Slemp, W. S.	

NSG 1470 **Va Polytechnic Inst & St Univ** **4278**
Control of interface reactions in composites

Period	Obligations	
11/07/77-06/30/81	FY80: \$35,664 TOTAL: \$91,048	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Houska, C. R.	LARC/Tenney, D. R.	47-Materials Engr
	LARC/Brewer, W. D.	

NSG 1524 **Va Polytechnic Inst & St Univ** **4279**
New aromatic polyamides containing n-propargyl groups as potential cross linking functions

Period	Obligations	
06/01/78-05/31/81	FY80: \$12,910 TOTAL: \$70,197	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Wolfe, J. F.	LARC/St.Clair, T. L.	12-Chemistry
	LARC/St.Clair, A. K.	

NSG 1527 **Va Polytechnic Inst & St Univ** **4280**
Distributed surface control for large space systems

Period	Obligations	
06/01/78-07/31/80	FY80: TOTAL: \$127,373	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Vanlandingham, H. F.	LARC/Montgomery, R. C.	45-Elec Engr
Jonsson, C. R.		

NSG 1571 **Va Polytechnic Inst & St Univ** **4281**
Fracture testing of graphite/polymide

Period	Obligations	
03/27/79-12/31/80	FY80: TOTAL: \$25,705	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Morris, D. H.	LARC/Everett, R. A.	47-Materials Engr
	LARC/Crews, J. H.	

NSG 1573 **Va Polytechnic Inst & St Univ** **4282**
Nonlinear wave choke inlets

Period	Obligations	
11/01/78-10/31/80	FY80: \$21,300 TOTAL: \$46,300	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Nayfeh, A. H.	LARC/Watson, W. R.	45-Elec Engr
	LARC/Lester, H. C.	

NSG 1589 **Va Polytechnic Inst & St Univ** **4283**
Mass transfer effects on turbulent flow along surfaces

Period	Obligations	
06/01/79-09/30/80	FY80: TOTAL: \$49,858	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Schetz, J. A.	LARC/Hefner, J. N.	41-Aero Engr
Inger, G. R.	LARC/Bushnell, D. M.	

NSG 1597 **Va Polytechnic Inst & St Univ** **4284**
Advanced matrix resins for graphite composites

Period	Obligations	
03/01/79-02/28/81	FY80: \$33,988 TOTAL \$67,087	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
McGrath, J. F.	LARC/St.Clair, A. K.	12-Chemistry
Ward, T. C.	LARC/St.Clair, T. L.	

NSG 1598 **Va Polytechnic Inst & St Univ** **4285**
Selected parameters to minimize community annoyance from airport noise

Period	Obligations	
04/01/79-03/31/81	FY80 \$41,803 TOTAL: \$72,391	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Frair, L.	LARC/DeLoach, R.	99-Multi-Discip

NSG 1608 **Va Polytechnic Inst & St Univ** **4286**
Experiments to verify non-parallel stability theory

Period	Obligations	
04/01/79-11/15/80	FY80: \$75,000 TOTAL: \$137,600	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Categories</i>
Sanic, W. S.	LARC/Hefner, J. N.	41-Aero Engr
	LARC/Bushnell, D. M.	

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VIRGINIA (Continued)

NSG 1621 **Va Polytechnic Inst & St Univ** **4287**
Use of two-dimensional transmission photoelastic models to study the stresses in double lap bolted joints
Period *Obligations*
09/01/79-11/30/81 FY80: TOTAL: \$27,802
Prin Invest *NASA Tech Officer* *CASE Category*
Hyer, M. W. LARC/Baker, D. J. 47-Materials Engr
LARC/Dexter, H. B.

NSG 2038 **Va Polytechnic Inst & St Univ** **4288**
Fundamental investigation of failure of fiber composites
Period *Obligations*
10/01/74-09/30/80 FY80: TOTAL: \$460,274
Prin Invest *NASA Tech Officer* *CASE Category*
Brinson, H. F. ARC/Nelson, H. G. 47-Materials Engr

NSG 2301 **Va Polytechnic Inst & St Univ** **4289**
Near-wall similarity in three-dimensional turbulent flows
Period *Obligations*
04/01/78-03/31/81 FY80: \$55,046 TOTAL: \$162,509
Prin Invest *NASA Tech Officer* *CASE Category*
Pierce, F. J. ARC/Rubenstein, M. W. 41-Aero Engr
ARC/Cleary, J. W.

NSG 3073 **Va Polytechnic Inst & St Univ** **4290**
Studies of internal flowfields of high throat mach-number quiet engine inlets
Period *Obligations*
10/01/75-02/14/81 FY80 TOTAL: \$63,122
Prin Invest *NASA Tech Officer* *CASE Category*
Jakubowski, A. K. LERC/Johns, A. I. 41-Aero Engr

NSG 3204 **Va Polytechnic Inst & St Univ** **4291**
Ion beam surface modification Surface analysis and adhesion
Period *Obligations*
06/07/78-06/06/81 FY80: \$19,867 TOTAL: \$39,738
Prin Invest *NASA Tech Officer* *CASE Category*
Dwight, D. W. LERC/Wintucky, F. G. 47-Materials Engr

NSG 3239 **Va Polytechnic Inst & St Univ** **4292**
Investigation of coupled torsional-axial-lateral coupled response of geared systems
Period *Obligations*
01/02/79-07/31/81 FY80: \$54,859 TOTAL: \$102,310
Prin Invest *NASA Tech Officer* *CASE Category*
Mitchell, T. D. LERC/Flemings, D. P. 41-Aero Engr

NSG 3274 **Va Polytechnic Inst & St Univ** **4293**
An improved model for switching converter power stages
Period *Obligations*
06/01/79-11/30/80 FY80 TOTAL: \$30,000
Prin Invest *NASA Tech Officer* *CASE Category*
Lee, F. C. LERC/Kolecki, J. C. 45-Elec Engr

NSG 3275 **Va Polytechnic Inst & St Univ** **4294**
An adaptive controller for an aircraft gas turbine propulsion system
Period *Obligations*
05/01/79-03/31/81 FY80: TOTAL: \$40,713
Prin Invest *NASA Tech Officer* *CASE Category*
Leonard, R. G. LERC/Lehtinen, B. 41-Aero Engr

NSG 6029 **Va Polytechnic Inst & St Univ** **4295**
Demonstration of a peanut leafspot advisory system based on agro environmental monitoring system data
Period *Obligations*
04/01/79-09/30/80 FY80: \$18,532 TOTAL: \$43,632
Prin Invest *NASA Tech Officer* *CASE Category*
Powell, N. L. WFC/Parker, L. C. 19-Phys Sci, NEC
Phipps, P. M. WFC/Scott, J. H., Jr.

NSG 6030 **Va Polytechnic Inst & St Univ** **4296**
Agro-environmental monitoring and management model development and implementation program
Period *Obligations*
04/01/79-09/30/81 FY80: \$48,568 TOTAL: \$98,368
Prin Invest *NASA Tech Officer* *CASE Category*
Powell, N. L. WFC/Scott, J. H. 19-Phys Sci, NEC

NSG 6031 **Va Polytechnic Inst & St Univ** **4297**
Development of water management systems for crop production utilizing soil, crop and agro environmental monitoring systems data
Period *Obligations*
04/01/79-09/30/80 FY80: \$32,900 TOTAL: \$58,400
Prin Invest *NASA Tech Officer* *CASE Category*
Powell, N. L. WFC/Parker, L. C. 19-Phys Sci, NEC
WFC/Scott, J. H., Jr.

NAS 1-16079 **Virginia State University** **4298**
An evaluation of the Langley Learning Center
Period *Obligations*
01/08/80-01/07/81 FY80: \$25,460 TOTAL: \$25,460
Prin Invest *NASA Tech Officer* *CASE Category*
Boese, A. F. LARC/Owens, F. C. 99-Multi-Discip

NSG 1342 **Virginia State University** **4299**
Material science and solid state physics studies with positive muon spin precession
Period *Obligations*
01/01/77-09/30/82 FY80: \$49,911 TOTAL: \$99,824
Prin Invest *NASA Tech Officer* *CASE Category*
Stronach, C. F. LARC/Singh, J. J. 13-Physics

NSG 1646 **Virginia State University** **4300**
Medium-energy nuclear physics studies
Period *Obligations*
10/01/79-05/31/81 FY80 TOTAL: \$26,618
Prin Invest *NASA Tech Officer* *CASE Category*
Stronach, C. F. LARC/Wilson, J. W. 13-Physics

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NAG 1-41 University of Washington 4301
Radiation viewfactor analysis
Period *Obligations*
03/01/80-02/28/81 FY80: \$49,994 TOTAL: \$49,994
Prin Invest NASA Tech Officer CASE Category
Emery, A. F. LARC/Wieting, A. R. 46-Mech Engr
Kippenham, C. J.

NAG 3-7 University of Washington 4302
In service shaping of abradable seals
Period *Obligations*
12/01/79-11/30/80 FY80: \$48,395 TOTAL: \$48,395
Prin Invest NASA Tech Officer CASE Category
Wolak, J. LERC/Hall, R. C. 46-Mech Engr
LERC/Ludwig, L. P.

NAG 3-16 University of Washington 4303
Research related to the technology of radiation machinery and high power gas lasers
Period *Obligations*
12/17/79-12/16/80 FY80: \$143,194 TOTAL: \$143,194
Prin Invest NASA Tech Officer CASE Category
Hertzberg, A. LERC/Chai, A. 13-Physics

NAG 5-45 University of Washington 4304
Observations of selected astronomical objects
Period *Obligations*
04/15/80-04/14/81 FY80: \$6,346 TOTAL: \$6,346
Prin Invest NASA Tech Officer CASE Category
Bohm, K. H. GSFC/Bogges, A. 11-Astronomy
Vitense, F. R.

NAG 8-342 University of Washington 4305
X-ray and optical study of symbiotic stars
Period *Obligations*
03/01/80-02/28/81 FY80: \$11,350 TOTAL: \$11,350
Prin Invest NASA Tech Officer CASE Category
Wallerstein, G. MSFC/Jones, J. B. 11-Astronomy
Wilson, L. A.

NAG 8-359 University of Washington 4306
X-ray images of spiral-rich clusters of galaxies
Period *Obligations*
07/01/80-06/30/81 FY80: \$4,268 TOTAL: \$4,268
Prin Invest NASA Tech Officer CASE Category
Sullivan, W. T. MSFC/Swearingen, J. C. 11-Astronomy

NAG 8-361 University of Washington 4307
X-ray study of four blue galactic emission line objects
Period *Obligations*
07/01/80-06/30/81 FY80: \$8,794 TOTAL: \$8,794
Prin Invest NASA Tech Officer CASE Category
Skody, P. MSFC/Swearingen, J. C. 11-Astronomy
Crosa, L.

NAG 8-364 University of Washington 4308
Cluster hubble-constant study
Period *Obligations*
06/20/80-06/19/81 FY80: \$5,970 TOTAL: \$5,970
Prin Invest NASA Tech Officer CASE Category
Boynton, P. F. MSFC/Swearingen, J. C. 11-Astronomy

NAG 8-366 University of Washington 4309
Analysis and interpretation of X-ray timing observations HEAO-1 guest investigator program
Period *Obligations*
07/27/80-07/26/81 FY80: \$21,064 TOTAL: \$21,064
Prin Invest NASA Tech Officer CASE Category
Boynton, P. F. MSFC/Stone, J. F. 11-Astronomy
Lamb, F. F.

NAG 8-378 University of Washington 4310
X-ray and IUF study of ball and ch stars
Period *Obligations*
09/22/80-09/21/81 FY80: \$7,991 TOTAL: \$7,991
Prin Invest NASA Tech Officer CASE Category
Bohm-vitense, F. MSFC/Stone, J. F. 11-Astronomy

NAGW 36 University of Washington 4311
Long term Viking Lander meteorology mission operations and analysis
Period *Obligations*
03/01/80-02/28/81 FY80: \$50,000 TOTAL: \$50,000
Prin Invest NASA Tech Officer CASE Category
Tillman, J. F. HD-SL/Murphy, R. F. 31-Atmos Sci
HD-SL/Brunk, W. I.

NAGW 85 University of Washington 4312
Geologic remote sensing
Period *Obligations*
09/16/80-09/15/83 FY80: \$200,000 TOTAL: \$200,000
Prin Invest NASA Tech Officer CASE Category
Adams, J. B. HD-ET/Vitale, J. A. 32-Geological Sci

NAS 1-14341 University of Washington 4313
Science support for the limb infrared monitor of the stratosphere experiment
Period *Obligations*
04/12/76-09/30/81 FY80: TOTAL: \$104,352
Prin Invest NASA Tech Officer CASE Category
Leovy, C. B. LARC/Russell, J. M., III 31-Atmos Sci
LARC/James, R. L., Jr.

NAS 1-16462 University of Washington 4314
Scientific investigations for Earth Radiation Budget Experiment (ERBE)
Period *Obligations*
09/30/80-09/29/85 FY80: \$4,020 TOTAL: \$4,020
Prin Invest NASA Tech Officer CASE Category
Hartman, D. L. LARC/Hall, J. B. 31-Atmos Sci
Wallace, J. M. LARC/Barkstrom, B. R.

NASA'S UNIVERSITY PROGRAM
WASHINGTON (Continued)

NAS 5-26262 University of Washington 4315
Nimbus 7 liquid water and vapor data studies
Period Obligations
09/26/80-09/25/82 FY80: \$50,000 TOTAL: \$50,000
Pnn Invest NASA Tech Officer CASE Category
Katsaros, K. B. GSFC/Nelson, D. 31-Atmos Sci

NAS 5-26301 University of Washington 4316
Wave dynamics and transport in the middle atmosphere (UARS)
Period Obligations
10/01/80-12/30/81 FY80: \$10,516 TOTAL: \$10,516
Pnn Invest NASA Tech Officer CASE Category
Holton, J. R. GSFC/Reber, C. A. 31-Atmos Sci

NAS 6-2996 University of Washington 4317
Air/Sea interaction studies for satellite measurements
Period Obligations
05/01/79-10/31/81 FY80: TOTAL: \$91,300
Pnn Invest NASA Tech Officer CASE Category
Katsaros, K. B. WFC/Huang, N. F. 33-Oceanography
Brown, R. A. WFC/Long, S. R.
Businger, J. A.

NAS 8-33148 University of Washington 4318
Atmospheric cloud physics laboratory gas scavenging experiment
Period Obligations
07/07/78-05/31/81 FY80: \$52,482 TOTAL: \$99,585
Pnn Invest NASA Tech Officer CASE Category
Hobbs, P. V. MSFC/Smith, R. F. 31-Atmos Sci
MSFC/Keller, V. W.

NAS 8-33337 University of Washington 4319
X-ray and optical study of the high polarization of variable stars (AN UMA)
Period Obligations
02/23/79-11/30/80 FY80: TOTAL: \$10,925
Pnn Invest NASA Tech Officer CASE Category
Szkody, P. MSFC/Jones, J. B., Jr. 11-Astronomy
Wallerstein, G.
Crova, I.

NAS 8-33344 University of Washington 4320
Coordinated X-ray infrared observations of rich clusters of galaxies
Period Obligations
02/27/79-12/26/79 FY80: TOTAL: \$2,436
Pnn Invest NASA Tech Officer CASE Category
Boynton, P. F. MSFC/Jones, J. B., Jr. 11-Astronomy

NAS 8-33360 University of Washington 4321
Analysis and interpretation of X-ray timing observations
Period Obligations
06/12/79-08/11/80 FY80: TOTAL: \$24,571
Pnn Invest NASA Tech Officer CASE Category
Boynton, P. F. MSFC/Jones, J. B., Jr. 11-Astronomy
Lamb, F. K.

NAS 8-33884 University of Washington 4322
Research study: Theory of global lightning as seen from a satellite
Period Obligations
07/22/80-07/21/81 FY80: \$14,657 TOTAL: \$14,657
Pnn Invest NASA Tech Officer CASE Category
Fly, J. T. MSFC/Smith, R. E. 31-Atmos Sci
MSFC/Jasper, G.

NAS 9-16052 University of Washington 4323
Life science flight experiment influence of gravity
Period Obligations
01/17/80-05/31/81 FY80: \$17,503 TOTAL: \$17,503
Pnn Invest NASA Tech Officer CASE Category
Mlastala, M. P. JSC/French, B. O. 59-Life Sci, NEC

NCA 2-850001 University of Washington 4324
1980 land cover classification for the Puget Sound region
Period Obligations
03/01/80-11/30/80 FY80: \$25,000 TOTAL: \$25,000
Pnn Invest NASA Tech Officer CASE Category
Shinn, R. D. ARC/Wilson, D. F. 39-Env Sci, NEC

NCA 2-850002 University of Washington 4325
Development of remote sensing techniques for Alaska wetlands delineation
Period Obligations
09/01/80-12/31/80 FY80: \$8,826 TOTAL: \$8,826
Pnn Invest NASA Tech Officer CASE Category
Westerlund, F. V. ARC/Wilson, D. F. 39-Env Sci, NEC

NGI 48-002-004 University of Washington 4326
Multidisciplinary research in materials sciences with emphasis on investigation of inorganic nonmetallic ceramic materials
Period Obligations
06/28/73-06/30/81 FY80: \$878,906 TOTAL: \$5,248,077
Pnn Invest NASA Tech Officer CASE Category
Mueller, J. I. HD-RT/Greenfield, M. A. 47-Materials Engr
HD-RT/Harris, L.

NGI 48-002-044 University of Washington 4327
Generation of coherent radiation and the use of intense coherent radiation for generation of plasmas
Period Obligations
05/19/67-02/15/80 FY80: TOTAL: \$1,092,900
Pnn Invest NASA Tech Officer CASE Category
Hertzberg, A. HD-RT/Randolph, L. 13-Physics
ARC/Billman, K. W.

NGI 48-002-047 University of Washington 4328
Interaction shock wave and turbulent boundary layer
Period Obligations
09/16/67-09/30/81 FY80: TOTAL: \$442,659
Pnn Invest NASA Tech Officer CASE Category
Childs, M. E. ARC/Chapman, G. T. 41-Aero Engr
ARC/Presley, L. L.

NASA'S UNIVERSITY PROGRAM
WASHINGTON (Continued)

NGR 48-002-141 **University of Washington** **4329**
Research program in aeronautics and air transportation
Period *Obligations*
05/10/72-10/31/80 **FY80: \$50,000** **TOTAL: \$323,485**
Prin Invest *NASA Tech Officer* *CASE Category*
Childs, M. E. ARC/Lee, G. 41-Aero Engr
Gessner, F. B.

NGR 48-002-142 **University of Washington** **4330**
Analysis of continuum channel light curves
Period *Obligations*
10/03/72-06/30/79 **FY80:** **TOTAL: \$107,031**
Prin Invest *NASA Tech Officer* *CASE Category*
Greene, T. F. HD-SL/Brunk, W. E. 11-Astronomy

NSG 2176 **University of Washington** **4331**
Wind shear detection by total energy method for use in landing of aircraft
Period *Obligations*
10/01/76-12/31/80 **FY80:** **TOTAL: \$100,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Joppa, R. G. ARC/Greer, B. 41-Aero Engr

NSG 2228 **University of Washington** **4332**
Stratospheric planetary waves
Period *Obligations*
08/01/77-01/31/81 **FY80** **TOTAL \$295,106**
Prin Invest *NASA Tech Officer* *CASE Category*
Holton, J. R. ARC/Young, R. F. 31-Atmos Sci
Leovy, C. B.

NSG 2362 **University of Washington** **4333**
Direct measurement of extinction by stratospheric aerosols
Period *Obligations*
01/01/79-12/31/80 **FY80 \$74,611** **TOTAL: \$109,778**
Prin Invest *NASA Tech Officer* *CASE Category*
Charlson, R. J. ARC/Page, W. A. 31-Atmos Sci
Waggoner, A. P.

NSG 2365 **University of Washington** **4334**
Configuration interaction
Period *Obligations*
07/01/79-06/30/81 **FY80 \$22,000** **TOTAL: \$43,000**
Prin Invest *NASA Tech Officer* *CASE Category*
Davidson, F. R. ARC/Larghoff, S. R. 12-Chemistry

NSG 3194 **University of Washington** **4335**
Stirling engine design manual
Period *Obligations*
05/01/78-10/31/79 **FY80:** **TOTAL \$51,858**
Prin Invest *NASA Tech Officer* *CASE Category*
Martini, W. R. LERC/Valentine, H. H. 46-Mech Engr
LERC/Tew, R. C.

NSG 3261 **University of Washington** **4336**
Design methods for shock-free cascades with future application to turbomachinery components
Period *Obligations*
03/15/79-03/14/81 **FY80: \$43,446** **TOTAL: \$72,139**
Prin Invest *NASA Tech Officer* *CASE Category*
Dixon, L. J. LERC/Braun, W. H. 41-Aero Engr
Hertzberg, A.

NSG 5240 **University of Washington** **4337**
Line identification in A stars: Termination of hydrogen convection
Period *Obligations*
03/01/78-10/31/79 **FY80:** **TOTAL: \$19,467**
Prin Invest *NASA Tech Officer* *CASE Category*
Bohm-vitense, E. GSFC/Bogges, A. 11-Astronomy
GSFC/West, D. K.

NSG 5283 **University of Washington** **4338**
Field-aligned particle fluxes and parallel electric potential
Period *Obligations*
07/01/78-07/31/79 **FY80:** **TOTAL: \$21,732**
Prin Invest *NASA Tech Officer* *CASE Category*
Lin, C. S. GSFC/Spencer, N. W. 31-Atmos Sci

NSG 5374 **University of Washington** **4339**
Kinematics and physical conditions in shocked clouds in supernova remnants
Period *Obligations*
06/01/79-09/30/81 **FY80 \$14,465** **TOTAL: \$31,647**
Prin Invest *NASA Tech Officer* *CASE Category*
Wallerstein, G. GSFC/Bogges, A. 11-Astronomy

NSG 5395 **University of Washington** **4340**
Ultraviolet observations of selected cataclysmic variables
Period *Obligations*
07/01/79-05/31/81 **FY80: \$10,000** **TOTAL: \$19,604**
Prin Invest *NASA Tech Officer* *CASE Category*
Szkody, P. GSFC/Bogges, A. 11-Astronomy

NSG 5398 **University of Washington** **4341**
Observations of classical stellar chromospheres
Period *Obligations*
07/15/79-06/30/81 **FY80: \$9,800** **TOTAL \$18,800**
Prin Invest *NASA Tech Officer* *CASE Category*
Bohm-vitense, E. GSFC/Bogges, A. 11-Astronomy

NSG 5410 **University of Washington** **4342**
Studies of discrete electromagnetic emissions in the magnetosphere
Period *Obligations*
09/15/79-03/14/81 **FY80: \$22,418** **TOTAL \$22,418**
Prin Invest *NASA Tech Officer* *CASE Category*
Lin, C. S. GSFC/Wende, C. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
WASHINGTON (Continued)**

NSG 7085 University of Washington **4343**
Dynamics of planetary atmospheres
Period Obligations
07/01/74-09/30/81 FY80: \$92,125 TOTAL: \$278,958
Prin Invest NASA Tech Officer CASE Category
Leovy, C. B. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NSG 7173 University of Washington **4344**
Application of spectral reflectance of lunar samples to telescopic
spectra of unvisited parts of the moon
Period Obligations
07/01/75-02/28/81 FY80: TOTAL: \$184,453
Prin Invest NASA Tech Officer CASE Category
Adams, J. B. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NSG 7313 University of Washington **4345**
Crystal-liquid distribution coefficients for selected elements
Period Obligations
03/01/77-02/28/81 FY80: \$49,795 TOTAL: \$167,903
Prin Invest NASA Tech Officer CASE Category
McCallum, I. S. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/French, B. M.

NSG 7318 University of Washington **4346**
Analysis of data on very high energy galactic electrons
Period Obligations
12/01/76-11/30/81 FY80: \$25,000 TOTAL: \$93,061
Prin Invest NASA Tech Officer CASE Category
Lord, J. J. HD-SC/Gilman, D. A. 11-Astronomy
HD-SC/Opp, A. G.

NSG 7448 University of Washington **4347**
Mars spectral photometry and surface composition
Period Obligations
02/01/78-01/31/80 FY80: TOTAL: \$41,326
Prin Invest NASA Tech Officer CASE Category
Adams, J. B. HD-SL/Quaide, W. L. 32-Geological Sci
HD-SL/Dwornik, S.

NSG 7611 University of Washington **4348**
Investigations of Martian meteorological processes using Viking
meteorological data
Period Obligations
03/01/79-12/31/80 FY80: \$70,000 TOTAL: \$114,000
Prin Invest NASA Tech Officer CASE Category
Leovy, C. B. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NSG 9032 University of Washington **4349**
Reflectance spectroscopy of lunar samples
Period Obligations
07/01/75-01/31/81 FY80: \$57,800 TOTAL: \$339,805
Prin Invest NASA Tech Officer CASE Category
Adams, J. B. JSC/Harris, J. W. 32-Geological Sci

NSG 9052 University of Washington **4350**
A study of interplanetary dust
Period Obligations
03/01/77-02/28/81 FY80: \$92,300 TOTAL: \$331,474
Prin Invest NASA Tech Officer CASE Category
Brownlee, D. E. JSC/Harris, J. W. 31-Atmos Sci

NAS 5-25994 Walla Walla College **4351**
Study of high-speed complex number algorithms
Period Obligations
01/21/80-01/21/81 FY80: \$15,905 TOTAL: \$15,905
Prin Invest NASA Tech Officer CASE Category
Heisler, R. GSFC/Schmidt, R. 21-Mathematics

NCA 2-840001 Washington State University **4352**
Joint use of facilities for establishing operational capabilities of
Washington state agencies and municipalities in the use of image
processing
Period Obligations
04/01/80-04/01/81 FY80: \$25,000 TOTAL: \$25,000
Prin Invest NASA Tech Officer CASE Category
Krebs, L. T. ARC/Wilson, D. E. 39-Env Sci, NEC
Scuderi, P. V.

NCA 2-840002 Washington State University **4353**
The physics and chemistry of supported metal clusters
Period Obligations
06/01/80-05/31/82 FY80: \$30,000 TOTAL: \$30,000
Prin Invest NASA Tech Officer CASE Category
Dickinson, J. T. ARC/Poppa, H. R. 13-Physics

NCA 2-840901 Washington State University **4354**
Studies and applications of hydrogen mapping on surfaces
Period Obligations
03/01/79-02/28/81 FY80: \$20,000 TOTAL: \$40,000
Prin Invest NASA Tech Officer CASE Category
Dickinson, J. T. ARC/Poppa, H. R. 13-Physics

NCC 2-69 Washington State University **4355**
The nucleation, growth, and in-situ oxidation of microscopic
crystallites of transition metals on refractory oxide substrates
Period Obligations
04/15/80-04/15/81 FY80: \$42,172 TOTAL: \$42,172
Prin Invest NASA Tech Officer CASE Category
Dickinson, J. T. ARC/Poppa, H. R. 13-Physics
Anton, R.

NSG 5383 Washington State University **4356**
Observations of planetary nebula shells and central stars
Period Obligations
07/01/79-06/30/81 FY80: \$3,100 TOTAL: \$5,650
Prin Invest NASA Tech Officer CASE Category
Lutz, J. H. GSFC/Bogges, A. 11-Astronomy

NASA'S UNIVERSITY PROGRAM
WASHINGTON (Continued)

NSG 7214 **Washington State University** **4357**
Atmospheric measurements of nitrous oxide and the halocarbons
Period *Obligations*
02/01/76-03/02/81 FY80: \$60,000 TOTAL: \$292,168
Prin Invest *NASA Tech Officer* *CASE Category*
Cronn, D. HD-EB/Toth, R. A. 31-Atmos Sci
Robinson, E. HD-EB/Tilford, S. G.

NAG 8-319 **University of Wisconsin - Madison** **4364**
A study of soft X-ray absorption by dense interstellar clouds under the High Energy Astronomical Observatory-B guest investigator program
Period *Obligations*
02/01/80-01/31/81 FY80: \$8,233 TOTAL: \$8,233
Prin Invest *NASA Tech Officer* *CASE Category*
Kraushaar, W. L. MSFC/Jones, J. B. 11-Astronomy
Sanders, W. T.

WISCONSIN

NAS 8-32901 **Beloit College** **4358**
Scientific investigations in support of the space telescope project
Period *Obligations*
02/22/78-02/22/84 FY80: TOTAL: \$102,965
Prin Invest *NASA Tech Officer* *CASE Category*
Schroeder, D. J. MSFC/ODell, C. R. 11-Astronomy

NAG 8-345 **University of Wisconsin - Madison** **4365**
Observations and analysis of X-ray emission AE/BE stars: simultaneous x-rays and ultraviolet observations of QB supergiants; search and analysis for X-ray emission from luminous early type stars
Period *Obligations*
03/01/80-02/28/81 FY80: \$27,938 TOTAL: \$27,938
Prin Invest *NASA Tech Officer* *CASE Category*
Cassinelli, J. P. MSFC/Jones, J. B. 11-Astronomy

NAS 8-33355 **Beloit College** **4359**
Guest investigation of three young supernova remnants
Period *Obligations*
06/15/79-06/14/81 FY80 TOTAL: \$6,922
Prin Invest *NASA Tech Officer* *CASE Category*
Winkler, P. F., Jr MSFC/Jones, J. B., Jr. 11-Astronomy

NAGW 47 **University of Wisconsin - Madison** **4366**
Interpretation of results from the Pioneer/ Venus net radiometer experiment
Period *Obligations*
02/01/80-01/30/81 FY80: \$50,000 TOTAL: \$50,000
Prin Invest *NASA Tech Officer* *CASE Category*
Suomi, V. E. HD-SL/Murphy, R. E. 31-Atmos Sci
HD-SL/Brunk, W. E.

NAG 1-65 **Marquette University** **4360**
A new observer system for determining orientation of balloon-borne observational platforms
Period *Obligations*
07/01/80-06/30/81 FY80: \$32,810 TOTAL: \$32,810
Prin Invest *NASA Tech Officer* *CASE Category*
Nigro, N. J. LARC/Hinton, D.

NAS 1-14136 **University of Wisconsin - Madison** **4367**
Laser radar for meteorological measurements
Period *Obligations*
09/11/75-01/31/81 FY80: \$166,425 TOTAL: \$785,979
Prin Invest *NASA Tech Officer* *CASE Category*
Eloranta, E. LARC/Browell, E. V. 31-Atmos Sci
Parent, R. J. LARC/Remsberg, E. E.
Roesler, F. L.

NAS 9-15711 **Marquette University** **4361**
Alterations in skeletal muscle with disuse atrophy
Period *Obligations*
09/21/78-03/01/81 FY80: \$40,000 TOTAL: \$115,000
Prin Invest *NASA Tech Officer* *CASE Category*
Fitts, R. H. JSC/Smith, M. C., Jr. 59-Life Sci, NEC

NAS 2-10359 **University of Wisconsin - Madison** **4368**
Dual photon absorptiometry system for ground based measurements of the lumbar spine in man
Period *Obligations*
09/24/79-11/15/80 FY80: TOTAL: \$30,047
Prin Invest *NASA Tech Officer* *CASE Category*
Mazess, R. ARC/Young, D. R. 56-Medical Sciences

NAG 5-23 **University of Wisconsin - Madison** **4362**
Analysis of three-dimensional thunderstorm model output in terms of geosynchronous satellite observations
Period *Obligations*
03/01/80-03/14/81 FY80: \$20,806 TOTAL: \$20,806
Prin Invest *NASA Tech Officer* *CASE Category*
Schlesinger, R. F. GSFC/Adler, R. F. 31-Atmos Sci

NAS 5-21965 **University of Wisconsin - Madison** **4369**
Development of an IR temperature sounder for SMS spacecraft
Period *Obligations*
08/01/73-10/15/81 FY80: \$786,797 TOTAL: \$2,506,330
Prin Invest *NASA Tech Officer* *CASE Category*
Suomi, V. E. GSFC/Montgomery, H. E. 31-Atmos Sci

NAG 5-81 **University of Wisconsin - Madison** **4363**
Resolution studies and energy diagnostics of global data and climate model simulation.
Period *Obligations*
06/15/80-06/14/81 FY80: \$38,500 TOTAL: \$38,500
Prin Invest *NASA Tech Officer* *CASE Category*
Johnson, D. R. GSFC/Atlas, R. M. 31-Atmos Sci

NASA'S UNIVERSITY PROGRAM WISCONSIN (Continued)

NAS 5-22349 University of Wisconsin - Madison 4370
High resolution spectroscopy for a one meter class UV-optical
telescope for Spacelab astronomy missions

Period	Obligations	
04/23/75-06/30/81	FY80: TOTAL: \$16,247	
Prin Invest	NASA Tech Officer	CASF Category
Anderson, C. M.	GSFC/Eiband, A. M.	11-Astronomy

NAS 5-25377 University of Wisconsin - Madison 4377
A study on the meteorological significance of cloud tracked winds
during data systems test 5 and 6

Period	Obligations	
12/27/78-01/26/81	FY80: TOTAL: \$28,160	
Prin Invest	NASA Tech Officer	CASF Category
Suomi, V. E.	GSFC/Greaves, J. R.	31-Atmos Sci

NAS 5-22410 University of Wisconsin - Madison 4371
Reduction and analysis of data from OSO-1 soft X-ray background
experiment

Period	Obligations	
06/26/75-03/31/81	FY80: TOTAL: \$682,537	
Prin Invest	NASA Tech Officer	CASF Category
Kraushaar, W. L.	GSFC/Gemmell, J. D.	31-Atmos Sci

NAS 5-25399 University of Wisconsin - Madison 4378
Data systems test evaluation

Period	Obligations	
12/27/78-03/26/80	FY80: TOTAL: \$34,637	
Prin Invest	NASA Tech Officer	CASF Category
Johnson, D. R.	GSFC/Greaves, J. R.	31-Atmos Sci
Gallimore, R. G.	GSFC/Stetina, F. L.	

NAS 5-23462 University of Wisconsin - Madison 4372
Global atmospheric research project

Period	Obligations	
06/07/76-11/30/80	FY80 TOTAL: \$335,920	
Prin Invest	NASA Tech Officer	CASF Category
Suomi, V. E.	GSFC/Greaves, J. R.	31-Atmos Sci

NAS 5-25487 University of Wisconsin - Madison 4379
Support to the space telescope wide field planetary camera
development team

Period	Obligations	
02/01/79-10/30/80	FY80 \$28,590 TOTAL: \$41,126	
Prin Invest	NASA Tech Officer	CASF Category
Code, A. D.	GSFC/Sours, W.	11-Astronomy

NAS 5-23706 University of Wisconsin - Madison 4373
Study of the economic benefits of meteorological satellite data

Period	Obligations	
08/30/76-01/31/81	FY80 \$74,862 TOTAL: \$391,774	
Prin Invest	NASA Tech Officer	CASF Category
Suomi, V. E.	GSFC/Hasler, A. F.	31-Atmos Sci

NAS 5-25505 University of Wisconsin - Madison 4380
Demonstration project to evaluate the opportunities for oper-
ational applications of LANDSAT data

Period	Obligations	
03/23/79-07/22/80	FY80: TOTAL: \$9,860	
Prin Invest	NASA Tech Officer	CASF Category
Scarpice, F. L.	GSFC/Middleton, F.	39-Env Sci, NRC

NAS 5-24385 University of Wisconsin - Madison 4374
Operation of a biomedical applications team

Period	Obligations	
12/19/77-12/31/80	FY80 \$125,000 TOTAL: \$570,000	
Prin Invest	NASA Tech Officer	CASF Category
Siedbank, M. P.	GSFC/Friedman, D. S.	
Huston, N. F.		56-Medical Sciences

NAS 5-25714 University of Wisconsin - Madison 4381
Support of High Resolution Spectrograph (HRS)

Period	Obligations	
05/16/79-03/15/84	FY80: \$35,000 TOTAL: \$55,000	
Prin Invest	NASA Tech Officer	CASF Category
Savage, B. C.	GSFC/Vitagliano, H. D.	11-Astronomy

NAS 5-24487 University of Wisconsin - Madison 4375
High speed photometer for the space telescope printer

Period	Obligations	
03/08/78-03/31/84	FY80: \$1,516,517 TOTAL: \$2,635,668	
Prin Invest	NASA Tech Officer	CASF Category
Bless, R. C.	GSFC/White, R. A.	11-Astronomy

NAS 5-25977 University of Wisconsin - Madison 4382
Investigation of antarctic crust and upper mantle using Magsat
and other geophysical data

Period	Obligations	
01/18/80-05/17/82	FY80: \$83,875 TOTAL: \$83,875	
Prin Invest	NASA Tech Officer	CASF Category
Bentley, C. R.	GSFC/Oseroff, H.	32-Geological Sci

NAS 5-25148 University of Wisconsin - Madison 4376
Technical support to the first GARP global experiment special
effort

Period	Obligations	
08/18/78-04/17/81	FY80: \$99,887 TOTAL: \$340,829	
Prin Invest	NASA Tech Officer	CASF Category
Suomi, V. E.	GSFC/Greaves, J. R.	31-Atmos Sci

NAS 5-26055 University of Wisconsin - Madison 4383
Generate an investigation development plan and establish the
preliminary interface for the Wisconsin ultraviolet photoelectric
polarimeter experiment

Period	Obligations	
02/29/80-02/28/81	FY80 \$54,996 TOTAL: \$54,996	
Prin Invest	NASA Tech Officer	CASF Category
Code, A. D.	GSFC/Eiband, A. M.	11-Astronomy

NASA'S UNIVERSITY PROGRAM
WISCONSIN (Continued)

NAS 5-26078 University of Wisconsin - Madison 4384
 Generate an investigation development plan and establish preliminary interfaces for the diffuse soft X-ray Bragg spectrometer

Period	Obligations	
03/10/80-05/09/81	FY80: \$218,364	TOTAL: \$218,364
Prin Invest	NASA Tech Officer	CASE Category
Kraushaar, W. L.	GSFC/Campbell, C. E.	11-Astronomy

NAS 5-26142 University of Wisconsin - Madison 4385
 Partially scanned interferometer sounding technique

Period	Obligations	
06/26/80-06/26/81	FY80: \$71,103	TOTAL: \$71,103
Prin Invest	NASA Tech Officer	CASE Category
Smith, W. L.	GSFC/Hurley, E. J.	31-Atmos Sci

NAS 5-26345 University of Wisconsin - Madison 4386
 Study climate observing system requirements and capability assessments

Period	Obligations	
09/25/80-09/24/81	FY80: \$39,946	TOTAL: \$39,946
Prin Invest	NASA Tech Officer	CASE Category
Suomi, V. E.	GSFC/Thiele, O. W.	39-Env Sci, NEC

NAS 8-33222 University of Wisconsin - Madison 4387
 Diagnostics of severe convection and sub synoptic scale ageostrophic circulations

Period	Obligations	
06/01/79-10/31/80	FY80:	TOTAL: \$78,488
Prin Invest	NASA Tech Officer	CASE Category
Johnson, D. R.	MSFC/Turner, R. E.	31-Atmos Sci
	MSFC/Johnson, R.	

NAS 8-33340 University of Wisconsin - Madison 4388
 Search and analysis of the X-ray emission from luminous type stars

Period	Obligations	
02/06/79-02/05/80	FY80:	TOTAL: \$11,960
Prin Invest	NASA Tech Officer	CASE Category
Cassinelli, J. P.	MSFC/Jones, J. B., Jr	11-Astronomy

NAS 8-33799 University of Wisconsin - Madison 4389
 Application of the AVE-SESAME data set to mesoscale studies

Period	Obligations	
05/13/80-05/12/81	FY80: \$48,529	TOTAL: \$48,529
Prin Invest	NASA Tech Officer	CASE Category
Suchman, D.	MSFC/Turner, R. E.	31-Atmos Sci
Wash, C. H.	MSFC/Hill, C. K.	

NAS 9-15580 University of Wisconsin - Madison 4390
 Vitamin D metabolites and bone demineralization

Period	Obligations	
04/01/78-10/01/81	FY80: \$50,000	TOTAL: \$165,000
Prin Invest	NASA Tech Officer	CASE Category
Schnoes, H. K.	JSC/Cintrone, N. M.	56-Medical Sciences
Holton, E. M.		
Deluca, H. F.		

NGL 50-002-013 University of Wisconsin - Madison 4391
 Investigations and studies of ultraviolet stellar spectra and associated instrumentation

Period	Obligations	
05/20/64-04/30/81	FY80: \$44,000	TOTAL: \$2,861,490
Prin Invest	NASA Tech Officer	CASE Category
Code, A. D.	GSFC/Guidotti, T.	11-Astronomy

NGL 50-002-044 University of Wisconsin - Madison 4392
 Research in cosmic and solar physics

Period	Obligations	
10/25/65-12/31/82	FY80: \$180,000	TOTAL: \$2,532,626
Prin Invest	NASA Tech Officer	CASE Category
Kraushaar, W. L.	GSFC/Bissell, E. E.	11-Astronomy
	HD-SC/Opp, A. G.	

NGL 50-002-127 University of Wisconsin - Madison 4393
 Multidisciplinary research in space science and engineering

Period	Obligations	
12/19/69-07/31/81	FY80:	TOTAL: \$1,737,000
Prin Invest	NASA Tech Officer	CASE Category
Clapp, J. L.	HD-ET/Vitale, J. J.	39-Env Sci, NEC

NGR 50-002-051 University of Wisconsin - Madison 4394
 Applications of the direct photon absorption techniques for measuring bone-mineral content

Period	Obligations	
09/01/66-10/31/80	FY80: \$25,005	TOTAL: \$656,269
Prin Invest	NASA Tech Officer	CASE Category
Mazess, R.	ARC/Young, D. R.	56-Medical Sciences
Cameron, J. R.		

NGR 50-002-162 University of Wisconsin - Madison 4395
 Solar wind physics

Period	Obligations	
01/26/71-12/31/80	FY80: \$21,000	TOTAL: \$398,463
Prin Invest	NASA Tech Officer	CASE Category
Scherb, F.	HD-ST/Hedin, A. E.	13-Physics
	HD-ST/Scmerling, E. R.	

NGR 50-002-189 University of Wisconsin - Madison 4396
 Cloud image processing for planetary flybys

Period	Obligations	
01/19/72-09/30/80	FY80:	TOTAL: \$158,083
Prin Invest	NASA Tech Officer	CASE Category
Suomi, V. E.	HD-SL/Murphy, R. E.	31-Atmos Sci

NSG 2104 University of Wisconsin - Madison 4397
 Viral etiology and epidemiology of respiratory infection in an isolated antarctic station

Period	Obligations	
09/01/75-11/30/80	FY80: \$30,000	TOTAL: \$180,000
Prin Invest	NASA Tech Officer	CASE Category
Benton, G.	ARC/Mandel, A.D.	56-Medical Sciences

NASA'S UNIVERSITY PROGRAM
WISCONSIN (Continued)

NSG 2405 University of Wisconsin - Madison **4398**
 Definition of plant characteristics for controlled ecology life support system and study of physiological injuries to plants anticipated in controlled ecology life support system

Period	Obligations	
09/01/79-05/30/81	FY80: \$36,791	TOTAL: \$76,646
Prin Invest	NASA Tech Officer	CASE Category
Tibbitts, T. W.	ARC/Zill, L. P.	51-Biological Sci

NSG 5251 University of Wisconsin - Madison **4404**
 Investigation of computer processing method of multiple geostationary satellite transmissions for cloud height determination

Period	Obligations	
03/01/78-03/31/80	FY80:	TOTAL: \$34,864
Prin Invest	NASA Tech Officer	CASE Category
Suomi, V. E.	GSFC/Minzner, R. A.	31-Atmos Sci
Stremier, F. G.	GSFC/Shenk, W. E.	

NSG 5152 University of Wisconsin - Madison **4399**
 Research of clouds and ice in the planetary scale circulation and in climate

Period	Obligations	
01/01/77-01/31/83	FY80: \$61,235	TOTAL: \$262,874
Prin Invest	NASA Tech Officer	CASE Category
Kutzbach, J. E.	GSFC/Halem, M.	31-Atmos Sci
Suomi, V. E.		

NSG 5252 University of Wisconsin - Madison **4405**
 Optimum employment of satellite

Period	Obligations	
03/15/78-04/14/81	FY80: \$62,503	TOTAL: \$123,995
Prin Invest	NASA Tech Officer	CASE Category
Horn, L. H.	GSFC/Halem, M.	31-Atmos Sci

NSG 5181 University of Wisconsin - Madison **4400**
 A source of interstellar abundances/ultraviolet studies of the interstellar medium, hot stars and cosmic X-ray sources

Period	Obligations	
07/01/77-06/30/79	FY80	TOTAL: \$17,454
Prin Invest	NASA Tech Officer	CASE Category
Savage, B. D.	GSFC/Kupperian, J. E., Jr	11-Astronomy

NSG 5363 University of Wisconsin - Madison **4406**
 Studies of the ultraviolet spectra of astronomical sources

Period	Obligations	
06/01/79-11/30/80	FY80 \$75,431	TOTAL: \$107,660
Prin Invest	NASA Tech Officer	CASE Category
Code, A. D.	GSFC/Bogges, A	11-Astronomy
Savage, B. D.		
Doherty, L. R.		

NSG 5223 University of Wisconsin - Madison **4401**
 Research of the effect of synoptic scale processes in global circulation models modelling

Period	Obligations	
01/16/78-11/14/80	FY80: \$52,330	TOTAL: \$142,500
Prin Invest	NASA Tech Officer	CASE Category
Herman, G. F.	GSFC/Halem, M.	31-Atmos Sci
Johnson, D. R.		

NSG 7050 University of Wisconsin - Madison **4407**
 Data analysis of OAO-2 ultraviolet spectrophotometry

Period	Obligations	
07/01/74-09/30/80	FY80:	TOTAL: \$421,267
Prin Invest	NASA Tech Officer	CASE Category
Code, A. D.	HD-SC/Weiler, E. J.	11-Astronomy
	HD-SC/Roman, N. G.	

NSG 5241 University of Wisconsin - Madison **4402**
 Interstellar Lyman alpha observations with the IUE satellite

Period	Obligations	
02/15/78-02/14/80	FY80:	TOTAL: \$23,361
Prin Invest	NASA Tech Officer	CASE Category
Savage, B. D.	GSFC/Bogges, A.	11-Astronomy
	GSFC/West, D. K.	

NSG 7215 University of Wisconsin - Madison **4408**
 Vacuum ultraviolet photon excitation and electron ejection from surfaces

Period	Obligations	
02/01/76-01/31/80	FY80	TOTAL: \$132,555
Prin Invest	NASA Tech Officer	CASE Category
Taylor, J. W.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. E.	

NSG 5242 University of Wisconsin - Madison **4403**
 High resolution spectral observations IUF

Period	Obligations	
02/15/78-02/14/80	FY80	TOTAL: \$15,646
Prin Invest	NASA Tech Officer	CASE Category
Doherty, L. R.	GSFC/Bogges, A.	11-Astronomy
	GSFC/West, D. K.	

NSG 7521 University of Wisconsin - Madison **4409**
 Origin of bacteria

Period	Obligations	
01/01/79-12/31/80	FY80: \$41,300	TOTAL: \$82,550
Prin Invest	NASA Tech Officer	CASE Category
Fitch, W. M.	HD-SB/Devincenzi, D. L.	51-Biological Sci

NASA'S UNIVERSITY PROGRAM WYOMING

WYOMING

NAG 2-33 **University of Wyoming** **4410**
 Carbonyl sulfide: An analysis of measurement techniques and
 determination of the stratospheric profile
Period *Obligations*
 03/15/80-05/14/81 **FY80: \$35,000** **TOTAL: \$35,000**
Prin Invest *NASA Tech Officer* *CASE Category*
 Hofmann, D. J. ARC/Page, W. A. 31-Atmos Sci
 Rinehart, E. A.

NAS 1-14373 **University of Wyoming** **4411**
 Science support for the Nimbus G stratospheric aerosol measure-
 ment experiment
Period *Obligations*
 04/02/76-12/31/79 **FY80:** **TOTAL: \$211,131**
Prin Invest *NASA Tech Officer* *CASE Category*
 Pepin, T. J. LARC/McCormick, M. P. 31-Atmos Sci
 LARC/McMaster, L. R.

NAS 1-14931 **University of Wyoming** **4412**
 Stratospheric aerosol and gas experiment
Period *Obligations*
 07/19/77-06/30/80 **FY80: \$59,684** **TOTAL: \$119,684**
Prin Invest *NASA Tech Officer* *CASE Category*
 Pepin, T. J. LARC/McMaster, L. R. 31-Atmos Sci
 LARC/McCormick, M. P.

NAS 1-15377 **University of Wyoming** **4413**
 Balloon-borne aerosol measurements. Ground truth for SAM
 II
Period *Obligations*
 05/04/78-12/31/80 **FY80: \$29,925** **TOTAL: \$109,725**
Prin Invest *NASA Tech Officer* *CASE Category*
 Hofmann, D. J. LARC/McMaster, L. R. 31-Atmos Sci
 Rosen, J. M. LARC/McCormick, M. P.

NAS 1-16305 **University of Wyoming** **4414**
 Science support for Earth radiation budget satellite/stratospheric
 aerosol and gas experiment
Period *Obligations*
 06/27/80-06/26/85 **FY80: \$40,540** **TOTAL: \$40,540**
Prin Invest *NASA Tech Officer* *CASE Category*
 Pepin, T. J. LARC/McMaster, L. R. 31-Atmos Sci
 LARC/McCormick, M. P.

NAS 8-32486 **University of Wyoming** **4415**
 Space processing applications rocket: Charged water-drop
 oscillations
Period *Obligations*
 04/30/77-03/29/80 **FY80:** **TOTAL: \$25,307**
Prin Invest *NASA Tech Officer* *CASE Category*
 Saunders, C. MSFC/Rceves, F. A. 47-Materials Engr
 MSFC/Chassay, R. P.

NAS 8-33150 **University of Wyoming** **4416**
 Atmospheric cloud physics laboratory ice forming experiment
 preliminary definition
Period *Obligations*
 08/07/78-05/31/81 **FY80: \$47,026** **TOTAL: \$90,238**
Prin Invest *NASA Tech Officer* *CASE Category*
 Vali, G. MSFC/Smith, R. E. 31-Atmos Sci
 MSFC/Keller, V. W.

NSG 1518 **University of Wyoming** **4417**
 Preliminary aerosol measurement (PAM II) data reduction
Period *Obligations*
 04/15/78-07/14/80 **FY80:** **TOTAL: \$133,825**
Prin Invest *NASA Tech Officer* *CASE Category*
 Pepin, T. J. LARC/McMaster, L. R. 31-Atmos Sci
 LARC/McCormick, M. P.

NSG 3217 **University of Wyoming** **4418**
 Energy absorption mechanisms during crack propagation in metal
 matrix composites
Period *Obligations*
 08/01/78-07/30/81 **FY80: \$38,556** **TOTAL: \$103,810**
Prin Invest *NASA Tech Officer* *CASE Category*
 Adams, D. F. LERC/Dicarlo, J. A. 47-Materials Engr
 LERC/Gnmes, H. H.

NSG 7349 **University of Wyoming** **4419**
 Measurements of the natural background of condensation nuclei
 at high altitude for assessment of future space shuttle effluent
 effect
Period *Obligations*
 07/01/77-06/30/80 **FY80:** **TOTAL: \$153,985**
Prin Invest *NASA Tech Officer* *CASE Category*
 Hofmann, D. J. HD-EB/Kakar, R. K. 31-Atmos Sci
 Rosen, J. M. HD-EB/Seals, R. K., Jr.

PUERTO RICO

NAS 5-25844 **University of Puerto Rico - Mayaguez** **4420**
 Computerized safety information system for GSFC's Health and
 Safety Engineering Office
Period *Obligations*
 07/05/79-09/14/80 **FY80:** **TOTAL: \$17,318**
Prin Invest *NASA Tech Officer* *CASE Category*
 Cabassa, H. D. GSFC/Lopez, J. J. 49-Engr, NEC

NASA'S UNIVERSITY PROGRAM CANADA

CANADA

NSG 7409 University of Toronto 4421
Application of the cubic strength criterion to the failure analysis
of composite structures

Period	Obligations	
03/01/78-05/31/82	FY80	TOTAL \$22,880
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tennyson, R. C.	LARC/Baker, D. J.	47-Materials Engr
	LARC/Pride, R. A.	

NSG 7647 University of Toronto 4422
Electron beam charging and arc discharging of spacecraft
insulating materials

Period	Obligations	
10/01/79-09/30/80	FY80 \$52,472	TOTAL \$52,472
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Balmain, K. G.	LERC/Aron, P. R.	45-Elec Engr

NSG 7223 York University 4423
Studies of the spectrum chlorine monoxide in the stratosphere

Period	Obligations	
05/01/76-04/30/80	FY80 \$40,000	TOTAL \$200,234
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nicholls, R. W.	ARC/Cooper, D. M.	31-Atmos Sci
	ARC/Arnold, J. O.	

CHILE

NAS 5-1925 University of Chile 4424
Maintenance and operation of minitrack facilities

Period	Obligations	
09/21/62-10/31/81	FY80 \$5,484,139	TOTAL \$39,916,976
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Diaz, I.	GSFC/Force, C. A.	99-Multi-Discip
	GSFC/Spintman, D.	

GREAT BRITAIN

NASW 3301 University of Oxford 4425
Nimbus type pressure modular drive

Period	Obligations	
11/01/79-01/31/80	FY80 \$14,950	TOTAL \$14,950
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Unavailable	LARC/Hinton, D.	45-Elec Engr

NSG 7517 University of Sheffield 4426

Vaporization of droplets in premixing chambers

Period	Obligations	
10/01/78-09/30/80	FY80	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chigier, N. A.	LERC/Lyons, V. J.	43-Chem Engr

NSG 7172 University of Southampton 4427

Self-streamlining of the test section of a transonic wind tunnel

Period	Obligations	
10/01/75-07/31/80	FY80: \$66,240	TOTAL: \$221,026
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goodyer, M. J.	LARC/Kilgore, R. A.	41-Aero Engr
	LARC/Ladson, C. L.	

NSG 7523 University of Southampton 4428

Investigations into the technology required to raise reliability levels
of magnetic suspension system

Period	Obligations	
01/01/79-08/31/81	FY80: \$54,590	TOTAL: \$64,390
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goodyer, M. J.	LARC/Boyden, R. P.	41-Aero Engr
	LARC/Kilgore, R. A.	

ISRAEL

NSG 7373 Israel Institute of Technology 4429

Study of active control systems for application to supersonic cruise
aircraft

Period	Obligations	
11/01/77-10/31/80	FY80	TOTAL: \$41,707
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nissim, E.	LARC/Abel, I.	41-Aero Engr
	LARC/Sobieski, J.	

ITALY

NASW 2135 University of Rome 44

Back-up data acquisition

Period	Obligations	
10/21/71-06/30/80	FY80: \$400,000	TOTAL: \$615,455
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Broglio, L.	HD-TN/Bavely, J. C.	11-Astronomy
	HD-TN/Stockwell, F. J.	

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

The Fields used here are specified by Amendment J, "Standard Classification of Fields of Science and Engineering," to Office of Management and Budget (OMB) Circular A-46, "Standards for Statistical Surveys." Field codes are interpreted as follows:

PHYSICAL SCIENCES	ENVIRONMENTAL SCIENCES (Terrestrial and extraterrestrial)	LIFE SCIENCES	SOCIAL SCIENCES
11 ASTRONOMY	31 ATMOSPHERIC SCIENCES	51 BIOLOGICAL SCIENCES	71 ANTHROPOLOGY
12 CHEMISTRY	32 GEOLOGICAL SCIENCES	52 CLINICAL MEDICAL	72 ECONOMICS
13 PHYSICS	33 OCEANOGRAPHY	53 OTHER MEDICAL	73 HISTORY
19 PHYSICAL SCIENCES, NEC*	39 ENVIRONMENTAL SCIENCES, NEC*	54 ENVIRONMENTAL BIOLOGY	74 LINGUISTICS
		55 AGRICULTURAL SCIENCES	75 POLITICAL SCIENCE
		56 MEDICAL SCIENCES	76 SOCIOLOGY
		59 LIFE SCIENCES, NEC*	79 SOCIAL SCIENCE, NEC*
	ENGINEERING		
MATHEMATICAL/COMP SCI	41 AERONAUTICAL		
21 MATHEMATICS	42 ASTRONAUTICAL		
22 COMPUTER SCIENCES	43 CHEMICAL		
29 MATHEMATICAL COMPUTER SCIENCES, NEC*	44 CIVIL	PSYCHOLOGY	
	45 ELECTRICAL	61 BIOLOGICAL	OTHER SCIENCES**
	46 MECHANICAL	62 SOCIAL ASPECTS	99 ALL DISCIPLINE(S)
	47 METALLURGY AND MATERIALS	69 PSYCHOLOGY, NEC*	
	49 ENGINEERING, NEC*		

*Not Elsewhere Classified (For interdisciplinary projects and others not listed by discipline name)

**For interdisciplinary projects which cannot be classified within any of the preceding main fields

Abbreviations used in the "Technical Officer Locations" column are discussed in the prefatory pages.

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	AMHERST COLLEGE	Jones, J. B.	MSFC	Greenstein, G.	NAG 8-330	2619
11	BELOIT COLLEGE	ODell, C. R.	MSFC	Schroeder, D. J.	NAS 8-32901	4358
11	BELOIT COLLEGE	Jones, J. B., Jr.	MSFC	Winkler, P. F., Jr.	NAS 8-33355	4359
11	BOSTON UNIVERSITY	Bogges, A.	GSFC	Kamp, L. W.	NAS 5-25445	2622
11	BOSTON UNIVERSITY	Leckrone, D. S.	GSFC	Kamp, L. W.	NSG 5389	2630
11	BOSTON UNIVERSITY	Corrigan, J. P.	GSFC	Hughes, W. J.	NSG 5407	2631
11	BOWIE STATE COLLEGE	Kniffen, D. A.	GSFC	Walker, R. P.	NGR 21-027-001	2472
11	BOWLING GRN STATE U	Bogges, A.	GSFC	Gregory, S.	NAG 5-64	3401
11	BRANDEIS UNIVERSITY	Jones, J. B., Jr.	MSFC	Ghigo, F. D.	NAS 8-33343	2633
11	BRIGHAM YOUNG UNIV	Bogges, A.	GSFC	McNamara, D. H.	NAG 5-62	4080
11	CALIF INST OF TECH	Haughney, L. C.	ARC	Phillips, T. G.	NAG 2-1	1202
11	CALIF INST OF TECH	Haughney, L. C.	ARC	Werner, M. W.	NGR 05-002-281	1243
11	CALIF INST OF TECH	Haughney, L. C.	ARC	Soifer, B. T.	NSG 2413	1249
11	CALIF INST OF TECH	Bogges, A.	GSFC	Sargent, W. L.	NAG 5-4	1204
11	CALIF INST OF TECH	Bogges, A.	GSFC	Soifer, B. T.	NAG 5-47	1205
11	CALIF INST OF TECH	Bogges, A.	GSFC	Trauger, J. T.	NAG 5-66	1206
11	CALIF INST OF TECH	Bogges, A.	GSFC	Cohen, J. G.	NAG 5-68	1207
11	CALIF INST OF TECH	Neupert, W. M.	GSFC	Zirin, H.	NAS 5-22939	1217
11	CALIF INST OF TECH	Sours, W. P.	GSFC	Westphal, J.	NAS 5-25451	1220
11	CALIF INST OF TECH	Corrigan, J. P.	GSFC	Stone, E. C.	NAS 5-25789	1221
11	CALIF INST OF TECH	Guidotti, J.	GSFC	Garmire, G. P.	NGR 05-002-284	1244
11	CALIF INST OF TECH	Kupperian, J. E., Jr.	GSFC	Neugebauer, G.	NSG 5208	1250
11	CALIF INST OF TECH	Bogges, A.	GSFC	Greenstein, J. L.	NSG 5243	1252
11	CALIF INST OF TECH	Bogges, A.	GSFC	Schmidt, M.	NSG 5244	1253
11	CALIF INST OF TECH	Bogges, A.	GSFC	Sargent, W. L.	NSG 5369	1258
11	CALIF INST OF TECH	Bogges, A.	GSFC	Greenstein, J. L.	NSG 5381	1259
11	CALIF INST OF TECH	Bogges, A.	GSFC	Meier, D. L.	NSG 5384	1260
11	CALIF INST OF TECH	Bogges, A.	GSFC	Green, R. F.	NSG 5385	1261
11	CALIF INST OF TECH	Jones, J. B.	MSFC	Zirin, H.	NAG 8-304	1208
11	CALIF INST OF TECH	Jones, J. B.	MSFC	Zirin, H.	NAG 8-313	1209

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	CALIF INST OF TECH	Jones, J. B.	MSFC	Decampli, W. D.	NAG 8-322	1210
11	CALIF INST OF TECH	Jones, J. B.	MSFC	Garmire, G. P.	NAG 8-324	1211
11	CALIF INST OF TECH	Stone, J. F.	MSFC	Garmire, G. P.	NAG 8-374	1212
11	CALIF INST OF TECH	Stone, J. F.	MSFC	Pravdo, S. H.	NAG 8-376	1213
11	CALIF INST OF TECH	Stone, J. F.	MSFC	Stone, E. C.	NAS 8-27978	1222
11	CALIF INST OF TECH	Jones, J. B.	MSFC	Garmire, G. P.	NAS 8-33331	1226
11	CALIF INST OF TECH	Jones, J. B.	MSFC	Garmire, G. P.	NAS 8-33352	1227
11	CALIF INST OF TECH	Roman, N. G.	HD-SC	Oke, J. B.	NGL 05-002-134	1234
11	CALIF INST OF TECH	Bogges, N. W.	HD-SC	Neugebauer, G.	NGL 05-002-207	1238
11	CALIF INST OF TECH	Kaluzienski, L. J.	HD-SC	Vogt, R. E.	NGR 05-002-160	1241
11	CALIF INST OF TECH	Roman, N. G.	HD-SC	Thorne, K. S.	NGR 05-002-256	1242
11	CALIF INST OF TECH	Roman, N. G.	HD-SC	Mashhoon, B.	NSG 7495	1269
11	CALIF INST OF TECH	Brunk, W. F.	HD-SL	Muhleman, D. O.	NGL 05-002-003	1230
11	CALIF INST OF TECH	Brunk, W. E.	HD-SL	Goldreich, P.	NGL 05-002-140	1235
11	CALIF INST OF TECH	Brunk, W. E.	HD-SL	Muhleman, D. O.	NGR 05-002-114	1240
11	CALIF INST OF TECH	Quaide, W. L.	HD-SL	Neugebauer, M. G.	NSG 7635	1273
11	CALIF INST OF TECH	Chipman, E.	HD-ST	Zirin, H.	NGL 05-002-034	1231
11	CASE WESTERN RESERVE	Gilman, D. A.	HD-SC	Frye, G.	NASW 3404	3428
11	CITADEL MLTRY CO S C	Bogges, A.	GSFC	Adelman, S. J.	NSG 5420	3791
11	CITY COLLEGE OF N Y	Black, D. C.	ARC	Yuan, C.	NSG 2348	3152
11	CITY COLLEGE OF N Y	Canuto, V.	GSFC	Arons, M.	NGL 33-013-040	3149
11	COLUMBIA UNIVERSITY	Gemmell, J. D.	GSFC	Novick, R.	NAS 5-24152	3166
11	COLUMBIA UNIVERSITY	Fiband, A. M.	GSFC	Novick, R.	NAS 5-24457	3167
11	COLUMBIA UNIVERSITY	Underwood, C.	GSFC	Novick, R.	NAS 5-26041	3171
11	COLUMBIA UNIVERSITY	Guidotti, J.	GSFC	Novick, R.	NGR 33-008-102	3180
11	COLUMBIA UNIVERSITY	Thaddeus, P.	GSFC	Happner, W.	NSG 5163	3186
11	COLUMBIA UNIVERSITY	Kupperman, J. E., Jr.	GSFC	Novick, R.	NSG 5194	3187
11	COLUMBIA UNIVERSITY	Jones, J. B.	MSFC	Novick, R.	NAS 8-30753	3172
11	COLUMBIA UNIVERSITY	Dailey, C. C.	MSFC	Novick, R.	NAS 8-33085	3174
11	COLUMBIA UNIVERSITY	Kaluzienski, L. J.	HD-SC	Novick, R.	NAGW 18	3164
11	COLUMBIA UNIVERSITY	Bogges, N. W.	HD-SC	Flynn, G.	NSG 7105	3190
11	CORNELL UNIVERSITY	Erickson, F. E.	ARC	Harwit, M.	NCA 2-175002	3206
11	CORNELL UNIVERSITY	Lum, H.	ARC	Houck, J. R.	NCC 2-79	3207
11	CORNELL UNIVERSITY	Haughney, L. C.	ARC	Houck, J. R.	NGR 33-010-081	3213
11	CORNELL UNIVERSITY	Mason, R. H.	ARC	Harwit, M.	NGR 33-010-146	3216
11	CORNELL UNIVERSITY	Cameron, R. M.	ARC	Houck, J. R.	NGR 33-010-182	3218
11	CORNELL UNIVERSITY	Haughney, L. C.	ARC	Harwit, M.	NSG 2347	3222
11	CORNELL UNIVERSITY	Haughney, L. C.	ARC	Beckwith, R.	NSG 2412	3226
11	CORNELL UNIVERSITY	Cohen, S. C.	GSFC	Turcott	NCC 5 2	3208
11	CORNELL UNIVERSITY	Bogges, N. W.	HD-SC	Houck, J.	NSG 7324	3233
11	CORNELL UNIVERSITY	Brunk, W. F.	HD-SL	Veverka, J.	NSG 7126	3236
11	DARTMOUTH COLLEGE	Jones, J. B.	MSFC	Mook, D. F.	NAG 8-305	3039
11	FLORIDA STATE UNIV	Brunk, W. F.	HD-SL	Hunt, R. H.	NGR 10-004-056	2036
11	GEORGE MASON UNIV	Michalitsianos, A. G.	GSFC	Kafatos, M.	NAG 5-124	4137
11	GEORGE MASON UNIV	Hobbs, R. W.	GSFC	Kafatos, M.	NSG 5305	4138
11	GEORGE MASON UNIV	Bogges, A.	GSFC	Michalitsianos, A. G.	NSG 5371	4139
11	GEORGE MASON UNIV	Gull, T. R.	GSFC	Kafatos, M.	NSG 5403	4140
11	HARVARD UNIVERSITY	Bogges, A.	GSFC	Grindlay, J. F.	NAG 5-72	2637
11	HARVARD UNIVERSITY	Kupperman, J. E., Jr.	GSFC	Dupree, A. K.	NSG 5226	2666
11	HARVARD UNIVERSITY	Bogges, A.	GSFC	Dupree, A. K.	NSG 5229	2668
11	HARVARD UNIVERSITY	Bogges, A.	GSFC	Dupree, A. K.	NSG 5239	2669
11	HARVARD UNIVERSITY	Kupperman, J. E., Jr.	GSFC	Dupree, A. K.	NSG 5293	2670
11	HARVARD UNIVERSITY	Kupperman, J. E., Jr.	GSFC	Dupree, A. K.	NSG 5312	2671
11	HARVARD UNIVERSITY	Bogges, A.	GSFC	Dupree, A. K.	NSG 5370	2672
11	HARVARD UNIVERSITY	Bogges, A.	GSFC	Dupree, A. K.	NSG 5380	2673
11	HARVARD UNIVERSITY	Jones, J. B.	MSFC	Rosner, R.	NAG 8-302	2638
11	HARVARD UNIVERSITY	Jones, J. B.	MSFC	Dupree, A. K.	NAG 8-344	2639
11	HARVARD UNIVERSITY	Snoddy, W. C.	MSFC	Hughes, B. M.	NAS 5-3949	2643

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	HARVARD UNIVERSITY	Bogger, N. W.	HD-SC	Fazio, G. G.	NGR 22-007-270	2660
11	HARVARD UNIVERSITY	Kaluzienski, L. J.	HD-SC	Cameron, A. G.	NGR 22-007-272	2661
11	HARVARD UNIVERSITY	Brunk, W. E.	HD-SL	Goody, R. M.	NSG 7332	2677
11	HARVARD UNIVERSITY	Bohlin, J. D.	HD-ST	Parkinson, W. H.	NGR 22-007-202	2658
11	HARVARD UNIVERSITY	Bohlin, J. D.	HD-ST	Parkinson, W. H.	NSG 7461	2678
11	HOUSTON BAPTIST UNIV	Kondo, Y.	GSFC	Modisette, J. L.	NSG 5421	3864
11	HOUSTON BAPTIST UNIV	Potter, A.	JSC	Morgan, T. H.	NSG 9038	3865
11	HOWARD UNIVERSITY	Bogges, A.	GSFC	Jackson, W. M.	NAG 5-65	1997
11	HOWARD UNIVERSITY	Stone, J. F.	MSFC	Kumar, C. K.	NAG 8-371	1999
11	INDIANA U-BLOOMINGTN	Hobbs, R. W.	GSFC	Burkhead, M. S.	NAS 5-22987	2278
11	INDIANA U-BLOOMINGTN	Jones, J. B.	MSFC	Mufson, S. L.	NAG 8-331	2273
11	INDIANA U-BLOOMINGTN	Stone, J. F.	MSFC	Durisen, R. H.	NAG 8-362	2274
11	INDIANA U-BLOOMINGTN	Stone, J. F.	MSFC	Mufson, S. L.	NAG 8-365	2275
11	INDIANA U-BLOOMINGTN	Dailey, C. C.	MSFC	Mufson, S. L.	NAS 8-33087	2279
11	INDIANA U-BLOOMINGTN	Brunk, W. E.	HD-SL	Edmondson, F. K.	NAGW 98	2277
11	IOWA STATE UNIV	Jones, T. B.	MSFC	Lamb, R. C.	NAG 8-338	2332
11	IOWA STATE UNIV	Swearingen, J. C.	MSFC	Lamb, R. C.	NAG 8-360	2333
11	IOWA STATE UNIV	Dailey, C. C.	MSFC	Lamb, R. C.	NAS 8-33013	2334
11	IOWA STATE UNIV	Jones, J. B., Jr.	MSFC	Lamb, R. C.	NAS 8-33334	2335
11	JOHNS HOPKINS UNIV	Eiband, A. M.	GSFC	Davidson, A.	NAS 5-26057	2485
11	JOHNS HOPKINS UNIV	Guidotti, J.	GSFC	Fastie, W. G.	NGR 21-001-001	2496
11	JOHNS HOPKINS UNIV	Bogges, A.	GSFC	Moos, H. W.	NSG 5255	2502
11	JOHNS HOPKINS UNIV	Kupperman, J. E., Jr.	GSFC	Moos, H. W.	NSG 5310	2504
11	JOHNS HOPKINS UNIV	Bogges, A.	GSFC	Moos, H. W.	NSG 5393	2505
11	JOHNS HOPKINS UNIV	ODell, C. R.	MSFC	Fastie, W. G.	NAS 8-32903	2489
11	JOHNS HOPKINS UNIV	Weiler, E. J.	HD-SC	Davidson, A. F.	NSG 7449	2508
11	JOHNS HOPKINS UNIV	Murphy, R. E.	HD-SL	Feldman, P. D.	NSG 7382	2507
11	LEHIGH UNIVERSITY	Bogges, A.	GSFC	McCluskey, G. E.	NSG 5386	3683
11	LEHIGH UNIVERSITY	Potter, A.	JSC	McCluskey, G. E.	NGR 39-007-061	3680
11	LEHIGH UNIVERSITY	Swearingen, J. C.	MSFC	McCluskey, G. E.	NAG 8-355	3673
11	LA ST U&A&M COL-BRGE	Sofia, S.	GSFC	Endal, A. S.	NAG 5-13	2445
11	LA ST U&A&M COL-BRGE	Bogges, A.	GSFC	Drilling, J. S.	NAG 5-71	2446
11	MASS INST OF TECH	Black, D. C.	ARC	Stalein, D. H.	NAG 2-50	2693
11	MASS INST OF TECH	Hall, C. F.	ARC	Pettingill, G. H.	NAS 2-9473	2712
11	MASS INST OF TECH	Hall, C. F.	ARC	Shapiro, I. I.	NAS 2-9483	2713
11	MASS INST OF TECH	Haughney, L. C.	ARC	Wright, E. L.	NSG 2263	2779
11	MASS INST OF TECH	Haughney, L. C.	ARC	Elliot, J. L.	NSG 2342	2781
11	MASS INST OF TECH	Bobbess, A.	GSFC	McClintock, J. E.	NAG 5-43	2703
11	MASS INST OF TECH	Corrigan, J. P.	GSFC	Clark, G. W.	NAS 5-24441	2721
11	MASS INST OF TECH	Mather, J. C.	GSFC	Weiss, R.	NAS 5-24493	2722
11	MASS INST OF TECH	Clark, T. C.	GSFC	Burke, B. F.	NAS 5-25543	2724
11	MASS INST OF TECH	Corrigan, J. P.	GSFC	Bridge, H. S.	NAS 5-25790	2726
11	MASS INST OF TECH	Bissell, E. E.	GSFC	Rappaport, S. A.	NGR 22-009-730	2763
11	MASS INST OF TECH	Hansen, J. E.	GSFC	Rivas, F. K.	NSG 5076	2797
11	MASS INST OF TECH	Stone, J. F.	MSFC	Bradt, H. V.	NAS 8-27972	2729
11	MASS INST OF TECH	Stone, J. F.	MSFC	Lewin, W. H.	NAS 8-27975	2730
11	MASS INST OF TECH	Stone, J. F.	MSFC	Clark, G. W.	NAS 8-30752	2731
11	MASS INST OF TECH	Kaluzienski, L. J.	HD-SC	Ricker, G. R.	NAGW 14	2706
11	MASS INST OF TECH	Bogges, N. W.	HD-SC	Weiss, R.	NGR 22-009-526	2757
11	MASS INST OF TECH	Bogges, N. W.	HD-SC	Kleinmann, S.	NSG 7186	2805
11	MASS INST OF TECH	Bogges, N. W.	HD-SC	Weiss, R.	NSG 7328	2807
11	MASS INST OF TECH	Gilman, D. A.	HD-SC	Lewin, W. H.	NSG 7339	2811
11	MASS INST OF TECH	Kaluzienski, L. J.	HD-SC	Clark, G.	NSG 7643	2819
11	MASS INST OF TECH	Brunk, W. E.	HD-SL	Pettingill, G. H.	NGR 22-009-672	2760
11	MASS INST OF TECH	Brunk, W. E.	HD-SL	Elliot, J. L.	NSG 7526	2815
11	MASS INST OF TECH	Brunk, W. E.	HD-SL	Shapiro, I. I.	NSG 7556	2816
11	MISSISSIPPI STATE U	Thomas, J. H.	MSFC	Ingels, F. M.	NAS 8-33570	2969
11	MORGAN STATE UNIV	Baker, G. R.	GSFC	Hammond, E. C., Jr.	NSG 5074	2514

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11	NEW MEX INST MINING	Hobbs, R. W.	GSFC	Moore, E.	NCA 5-69	3120
11	NEW MEX INST MINING	Hobbs, R. W.	GSFC	Moore, E. P.	NCA 5-71	3121
11	NEW MEX INST MINING	Brandt, J.	GSFC	Moore, E. P.	NCA 5-81	3122
11	NEW MEX INST MINING	Jones, J. B.	MSFC	Gibson, D. M.	NAG 8-347	3117
11	NEW MEX INST MINING	Jones, J. B.	MSFC	Gibson, D. M.	NAS 8-33341	3118
11	NEW MEX ST U-LAS CR	Brunk, W. E.	HD-SL	Beebe, R. F.	NGL 32-003-001	3131
11	NEW YORK UNIVERSITY	Boggess, A.	GSFC	Glassgold, A. E.	NAG 5-73	3247
11	NEW YORK UNIVERSITY	Boggess, A.	GSFC	Huggins, P. J.	NSG 5411	3264
11	NEW YORK UNIVERSITY	Jones, J. B.	MSFC	Glassgold, A. E.	NAG 8-337	3248
11	NEW YORK UNIVERSITY	Jones, J. B.	MSFC	Huggins, P. J.	NAG 8-343	3249
11	NEW YORK UNIVERSITY	Swearingen, J. C.	MSFC	Glassgold, A. E.	NAG 8-358	3250
11	NORTHWESTERN UNIV	Jones, J. B., Jr.	MSFC	Ulmer, M. P.	NAG 8-326	2194
11	NORTHWESTERN UNIV	Stone, J. F.	MSFC	Ulmer, M. P.	NAG 8-367	2195
11	NORTHWESTERN UNIV	Stone, J. F.	MSFC	Ulmer, M. P.	NAG 8-368	2196
11	NORTHWESTERN UNIV	Jones, J. B., Jr.	MSFC	Ulmer, M. P.	NAS 8-33010	2197
11	NORTHWESTERN UNIV	Jones, J. B., Jr.	MSFC	Ulmer, M. P.	NAS 8-33354	2198
11	NORTHWESTERN UNIV	Weiler, E. J.	HD-SC	Huang, S. S.	NGL 14-007-041	2201
11	OHIO STATE UNIV	Boggess, A.	GSFC	Czyzak, S. J.	NAG 5-42	3494
11	OHIO STATE UNIV	Boggess, A.	GSFC	Slettebak, A.	NAG 5-52	3495
11	OHIO STATE UNIV	Boggess, A.	GSFC	Wing, R. F.	NSG 5247	3523
11	OHIO STATE UNIV	Kupperman, J. E., Jr.	GSFC	Slettebak, A. E.	NSG 5299	3526
11	OHIO STATE UNIV	Boggess, A.	GSFC	Wing, R. F.	NSG 5368	3527
11	PAN AMERICAN UNIV	Mendell, W.	JSC	Glaser, F. M.	NSG 9070	3868
11	PENN STATE U-UNIV PK	Boggess, A.	GSFC	Wegner, G. A.	NAG 5-60	3694
11	PRINCETON UNIVERSITY	Boggess, A.	GSFC	Cowie, L. L.	NAG 5-48	3065
11	PRINCETON UNIVERSITY	Kupperman, J. E., Jr.	GSFC	Spitzer, L., Jr.	NAS 5-1810	3071
11	PRINCETON UNIVERSITY	Corrigan, J. P.	GSFC	Spitzer, L., Jr.	NAS 5-23576	3073
11	PRINCETON UNIVERSITY	Mather, J. C.	GSFC	Wilkinson, D.	NAS 5-24486	3074
11	PRINCETON UNIVERSITY	Leckrone, D. S.	GSFC	Groth, E. J.	NAS 5-25084	3075
11	PRINCETON UNIVERSITY	Guidotti, J.	GSFC	Jenkins, E. B.	NAS 5-26268	3077
11	PRINCETON UNIVERSITY	Boggess, A.	GSFC	Jenkins, E. B.	NSG 5248	3093
11	PRINCETON UNIVERSITY	Boggess, A.	GSFC	York, D. G.	NSG 5382	3095
11	PRINCETON UNIVERSITY	Corrigan, J. P.	GSFC	Turners, E. L.	NSG 5415	3096
11	PRINCETON UNIVERSITY	Jones, J. B., Jr.	MSFC	Cowie, L. L.	NAG 8-306	3066
11	PRINCETON UNIVERSITY	Swearingen, J. C.	MSFC	Bahcall, N. A.	NAG 8-363	3067
11	PRINCETON UNIVERSITY	Jones, J. B., Jr.	MSFC	Cowie, L. L.	NAS 8-33345	3079
11	PRINCETON UNIVERSITY	Weiler, E. J.	HD-SC	York, D. G.	NAGW 10	3068
11	PRINCETON UNIVERSITY	Weiler, E. J.	HD-SC	Spitzer, L., Jr.	NGL 31-001-007	3082
11	PRINCETON UNIVERSITY	Weiler, E. J.	HD-SC	Bahcall, N. A.	NSG 7256	3099
11	PRINCETON UNIVERSITY	Boggess, N. W.	HD-SC	Wilkinson, D.	NSG 7302	3101
11	PRINCETON UNIVERSITY	Roman, N. G.	HD-SC	Spitzer, L., Jr.	NSG 7600	3103
11	PRINCETON UNIVERSITY	Weiler, E. J.	HD-SC	Jenkins, E. B.	NSG 7618	3105
11	PRINCETON UNIVERSITY	Brunk, W. E.	HD-SL	Danielson, R. E.	NSG 7053	3097
11	PURDUE UNIVERSITY	Rosendhal, J. D.	HD-SC	Moffett, T. J.	NSG 7167	2322
11	RICE UNIVERSITY	Boggess, A.	GSFC	Dufour, R. J.	NSG 5364	3893
11	RICE UNIVERSITY	Parker, R. A.	JSC	Dufour, R. J.	NAS 9-15940	3884
11	RICE UNIVERSITY	Jones, J. B.	MSFC	Haymes, R. C.	NAS 8-33361	3880
11	RICE UNIVERSITY	Gray, J. W.	WFC	Anderson, H. R.	NAS 6-1667	3877
11	RUTGERS U-N BRUNSWK	Boggess, A.	GSFC	Matlsky, T.	NAG 5-70	3106
11	RUTGERS U-N BRUNSWK	Kupperman, J. E., Jr.	GSFC	Matlsky, T.	NSG 5195	3110
11	RUTGERS U-N BRUNSWK	Jones, J. B.	MSFC	Matlsky, T.	NAG 8-309	3107
11	RUTGERS U-N BRUNSWK	Jones, J. B.	MSFC	Cheng, A. F.	NAG 8-328	3108
11	SAN DIEGO STATE UNIV	Swearingen, J. C.	MSFC	Young, A.	NAG 8-356	1313
11	SAN FRAN STATE UNIV	Barnes, A.	ARC	Nerney, S. F.	NCC 2-95	1321
11	SO UNIV-BATON ROUGE	Estabrook, F. B.	JPL	Yang, C. H.	NGR 19-005-006	2461
11	STANFORD UNIVERSITY	Hoffman, R. A.	GSFC	Helliwell, R. A.	NAS 5-25688	1382
11	STANFORD UNIVERSITY	Corrigan, J. P.	GSFC	Helliwell, R. A.	NAS 5-25744	1383
11	STANFORD UNIVERSITY	Campbell, C. F.	GSFC	Hofstadler, R.	NAS 5-26020	1384

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11	STANFORD UNIVERSITY	Boggess, A.	GSFC	Walker, A. B.	NSG 5417	1470
11	STANFORD UNIVERSITY	Jones, J. B.	MSFC	Walker, A. B.	NAG 8-325	1371
11	STANFORD UNIVERSITY	Snoddy, W. C.	MSFC	Underwood, J. H.	NAS 8-32263	1385
11	STANFORD UNIVERSITY	Dailey, C. C.	MSFC	Walker, A. B.	NAS 8-33012	1389
11	STANFORD UNIVERSITY	Manning, H. S.	MSFC	Wagoner, R. V.	NAS 8-33234	1391
11	STANFORD UNIVERSITY	Kaluzienski, L. J.	HD-SC	Hofstadter, R.	NGR 05-020-452	1447
11	STANFORD UNIVERSITY	Kaluzienski, L. J.	HD-SC	Sturrock, P. A.	NGR 05-020-668	1452
11	STANFORD UNIVERSITY	Weiler, E. J.	HD-SC	Will, C. M.	NSG 7204	1472
11	STANFORD UNIVERSITY	Kaluzionski, L. J.	HD-SC	Walker, A. B.	NSG 7476	1473
11	STANFORD UNIVERSITY	Brunk, W. E.	HD-SL	Tyler, G. L.	NSG 7561	1476
11	STANFORD UNIVERSITY	Chipman, E.	HD-ST	Wilcox, J. M.	NGR 05-020-559	1449
11	STANFORD UNIVERSITY	Chipman, E.	HD-ST	Petrosian, V.	NSG 7092	1471
11	STATE UNIV NY-ALBANY	Gary, G. A.	MSFC	Weinberg, J. L.	NSG 8040	3317
11	STATE UNIV NY-ALBANY	Weiler, E. J.	HD-SC	Weinberg, J. L.	NSG 7241	3315
11	ST U NY COL-GENESE	Corrigan, J. P.	GSFC	Meisel, D. D.	NAG 5-113	3350
11	STATE U NY-STONY BRK	Kerr, A. R.	GSFC	Kao, Y. H.	NSG 5125	3340
11	STATE U NY-STONY BRK	Boggess, A.	GSFC	Caldwell, J. J.	NSG 5250	3341
11	STATE U NY-STONY BRK	Jones, J. B.	MSFC	Simon, M.	NAG 8-332	3322
11	STATE U NY-STONY BRK	ODell, C. R.	MSFC	Caldwell, J. J.	NAS 8-32904	3327
11	STATE U NY-STONY BRK	Fishman, G. J.	HD-SC	Forman, M. A.	NGR 33-015-180	3337
11	STATE U NY-STONY BRK	Brunk, W. E.	HD-SL	Owen, T.	NGR 33-015-141	3335
11	STATE U NY-STONY BRK	Brunk, W. E.	HD-SL	Knacke, R. F.	NSG 7286	3343
11	STATE U NY-STONY BRK	Brunk, W. E.	HD-SL	Caldwell, J. J.	NSG 7320	3344
11	UNIV ALA-HUNTSVILLE	Corrigan, J. P.	GSFC	Horwitz, J. L.	NSG 5413	1072
11	UNIV ALA-HUNTSVILLE	Weisskopf, M. C.	MSFC	Gregory, J. C.	NAS 8-33977	1063
11	UNIV ALASKA-FAIRBANKS	Corrigan, J. P.	GSFC	Lee, L. C.	NSG 5409	1085
11	UNIV OF ARIZONA	Black, D. C.	ARC	Serkowski, K. M.	NAG 2-52	1111
11	UNIV OF ARIZONA	Haughney, L. C.	ARC	Thronson, H.	NAG 2-55	1112
11	UNIV OF ARIZONA	Hall, C. F.	ARC	Gehrels, A. M.	NAS 2-6265	1128
11	UNIV OF ARIZONA	McCreight, C. R.	ARC	Davidson, A.	NAS 2-10436	1130
11	UNIV OF ARIZONA	Werner, M. W.	ARC	Harvey, P. M.	NCA 2-40001	1147
11	UNIV OF ARIZONA	Haughney, L. C.	ARC	Larson, H. P.	NGR 03-002-332	1160
11	UNIV OF ARIZONA	Haughney, L. C.	ARC	Harvey, P. M.	NGR 03-002-390	1163
11	UNIV OF ARIZONA	Black, D. C.	ARC	Serkowski, K. M.	NSG 2205	1166
11	UNIV OF ARIZONA	Gull, T. R.	GSFC	Craine, E. R.	NAG 5-34	1115
11	UNIV OF ARIZONA	Boggess, A.	GSFC	Green, R. F.	NAG 5-38	1116
11	UNIV OF ARIZONA	Boggess, A.	GSFC	Williams, R. E.	NAG 5-56	1117
11	UNIV OF ARIZONA	Boggess, A.	GSFC	Giampapa, M. S.	NAG 5-57	1118
11	UNIV OF ARIZONA	Donn, B.	GSFC	Larson, S.	NAG 5-86	1120
11	UNIV OF ARIZONA	Eirand, A. M.	GSFC	Smith, B. A.	NAS 5-24308	1131
11	UNIV OF ARIZONA	Liberatore, F. J.	GSFC	Weymann, R. J.	NAS 5-25733	1133
11	UNIV OF ARIZONA	Kalet, M. W.	GSFC	Beckers, J. M.	NAS 5-25955	1134
11	UNIV OF ARIZONA	Boggess, A.	GSFC	Imhoff, C. L.	NSG 5235	1169
11	UNIV OF ARIZONA	Boggess, A.	GSFC	Tomasko, M. G.	NSG 5249	1170
11	UNIV OF ARIZONA	Jones, J. B.	MSFC	Strittmatter, P. A.	NAG 8-321	1121
11	UNIV OF ARIZONA	Stone, J. F.	MSFC	Stoeck, J. T.	NAG 8-370	1122
11	UNIV OF ARIZONA	Stone, J. F.	MSFC	Green, R. F.	NAG 8-380	1123
11	UNIV OF ARIZONA	Parnell, T. A.	MSFC	Benton, E. V.	NAS 8-31192	1136
11	UNIV OF ARIZONA	Jones, J. B., Jr.	MSFC	Strittmatter, P. A.	NAS 8-33351	1139
11	UNIV OF ARIZONA	Fishman, G. J.	MSFC	Larson, H. P.	NAS 8-33732	1142
11	UNIV OF ARIZONA	Boggess, N. W.	HD-SC	Low, F. J.	NGR 03-002-269	1159
11	UNIV OF ARIZONA	Boggess, N. W.	HD-SC	Campbell, M.	NGR 03-002-371	1162
11	UNIV OF ARIZONA	Gilman, D. A.	HD-SC	Jokipii, J. R.	NSG 7101	1177
11	UNIV OF ARIZONA	Boggess, N. W.	HD-SC	Craine, E. R.	NSG 7368	1182
11	UNIV OF ARIZONA	Weiler, E. J.	HD-SC	Tapia, S. F.	NSG 7574	1191
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Gehrels, A. M.	NASW 3262	1144
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Wilkening, L. L.	NASW 3413	1145
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Smith, B. A.	NGL 03-002-002	1150

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11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Gehrels, T.	NGL 03-002-081	1152
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Cox, E. L.	NGL 03-002-122	1153
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Gehrels, A. M.	NGR 03-002-219	1158
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Hubbard, W. B.	NSG 7045	1175
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Fink, U. W.	NSG 7070	1176
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Rieke, G. H.	NSG 7114	1178
11	UNIV OF ARIZONA	Murphy, R. E.	HD-SL	Hsieh, K. C.	NSG 7374	1183
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Zellner, B. H.	NSG 7502	1187
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Brown, R. A.	NSG 7634	1195
11	UNIV CALIF-BERKELEY	Haughney, L. C.	ARC	Townes, C. H.	NGR 05-003-511	1545
11	UNIV CALIF-BERKELEY	Corrigan, J. P.	GSFC	Bowyer, C. S.	NAG 5-27	1481
11	UNIV CALIF-BERKELEY	Corrigan, J. P.	GSFC	Bowyer, C. S.	NAG 5-28	1482
11	UNIV CALIF-BERKELEY	Boggess, A.	GSFC	Kuhl, L.	NAG 5-55	1483
11	UNIV CALIF-BERKELEY	Boggess, A.	GSFC	Bowyer, C. S.	NAG 5-69	1484
11	UNIV CALIF-BERKELEY	Boggess, A.	GSFC	Chu, Y. H.	NAG 5-103	1486
11	UNIV CALIF-BERKELEY	Corrigan, J. P.	GSFC	Bowyer, C. S.	NAG 5-117	1487
11	UNIV CALIF-BERKELEY	Willis, S. E.	GSFC	Bowyer, C. S.	NAS 5-24189	1508
11	UNIV CALIF-BERKELEY	Willis, S. E.	GSFC	Bowyer, C. S.	NAS 5-24445	1509
11	UNIV CALIF-BERKELEY	Mather, J. C.	GSFC	Smoot, G. F.	NAS 5-25007	1510
11	UNIV CALIF-BERKELEY	Leckrone, D. S.	GSFC	King, I.	NAS 5-25070	1511
11	UNIV CALIF-BERKELEY	Corrigan, J. P.	GSFC	Moler, F. S.	NAS 5-25770	1513
11	UNIV CALIF-BERKELEY	Porreca, G.	GSFC	Anderson, D. A.	NAS 5-25892	1514
11	UNIV CALIF-BERKELEY	Wales, R. O.	GSFC	Anderson, K. A.	NAS 5-25980	1516
11	UNIV CALIF-BERKELEY	Guidotti, J.	GSFC	Bowyer, C. S.	NGR 05-003-450	1541
11	UNIV CALIF-BERKELEY	Kupperian, J. E., Jr.	GSFC	Bowyer, S.	NSG 5292	1553
11	UNIV CALIF-BERKELEY	Boggess, A.	GSFC	Spinrad, H.	NSG 5360	1554
11	UNIV CALIF-BERKELEY	Jones, J. L.	LARC	Price, P. B.	NAS 1-16268	1500
11	UNIV CALIF-BERKELEY	Jones, J. B.	MSFC	Bowyer, C. S.	NAG 8-301	1488
11	UNIV CALIF-BERKELEY	Jones, J. B.	MSFC	Bowyer, C. S.	NAG 8-303	1489
11	UNIV CALIF-BERKELEY	Jones, J. B.	MSFC	Silk, J. I.	NAG 8-311	1490
11	UNIV CALIF-BERKELEY	Jones, J. B.	MSFC	Welsh, W. J.	NAG 8-312	1491
11	UNIV CALIF-BERKELEY	Jones, J. B.	MSFC	Silk, J. I.	NAG 8-320	1492
11	UNIV CALIF-BERKELEY	Jones, J. B.	MSFC	Spinrad, H.	NAG 8-333	1493
11	UNIV CALIF-BERKELEY	Jones, J. B.	MSFC	Kuhl, L. V.	NAG 8-336	1494
11	UNIV CALIF-BERKELEY	Swearingen, J. C.	MSFC	Silk, J. I.	NAG 8-351	1495
11	UNIV CALIF-BERKELEY	Stone, J. F.	MSFC	Kuhl, L.	NAG 8-381	1496
11	UNIV CALIF-BERKELEY	Marmann, R.	MSFC	Bowyer, C. S.	NAS 8-32577	1517
11	UNIV CALIF-BERKELEY	Dailey, C. C.	MSFC	Anderson, K. A.	NAS 8-33011	1518
11	UNIV CALIF-BERKELEY	Jones, J. B., Jr.	MSFC	Bowyer, C. S.	NAS 8-33349	1519
11	UNIV CALIF-BERKELEY	Jones, J. B., Jr.	MSFC	McKee, C.	NAS 8-33356	1520
11	UNIV CALIF-BERKELEY	Barnes, J. B.	MSFC	Anderson, K. A.	NAS 8-33357	1521
11	UNIV CALIF-BERKELEY	Kaluzienski, L. J.	HD-SC	Lampton, M.	NAGW 44	1497
11	UNIV CALIF-BERKELEY	Boggess, N. W.	HD-SC	Smoot, G. F.	NAGW 66	1498
11	UNIV CALIF-BERKELEY	Boggess, N. W.	HD-SC	Townes, C. H.	NGL 05-003-272	1535
11	UNIV CALIF-BERKELEY	Kaluzienski, L. J.	HD-SC	Price, P. B.	NGR 05-003-376	1540
11	UNIV CALIF-BERKELEY	Kaluzienski, L. J.	HD-SC	Heckman, H. H.	NGR 05-003-513	1546
11	UNIV CALIF-BERKELEY	Kaluzienski, L. J.	HD-SC	Buffington, A.	NGR 05-003-553	1547
11	UNIV CALIF-BERKELEY	Weiler, E. J.	HD-SC	Silk, J. I.	NGR 05-003-578	1548
11	UNIV CALIF-BERKELEY	Boggess, N. W.	HD-SC	Richards, P. L.	NSG 7205	1557
11	UNIV CALIF-BERKELEY	Boggess, N. W.	HD-SC	Smoot, G. F.	NSG 7455	1562
11	UNIV CALIF-BERKELEY	Kaluzienski, L. J.	HD-SC	Lin, R. P.	NSG 7592	1565
11	UNIV CALIF-BERKELEY	Brunk, W. E.	HD-SL	Townes, C. H.	NGR 05-003-452	1543
11	UNIV CALIF-BERKELEY	Brunk, W. E.	HD-SL	Welch, W. J.	NSG 7152	1556
11	UNIV CALIF-L ANGELES	Fimmel, R. O.	ARC	Kaula, W. H.	NAS 2-9128	1595
11	UNIV CALIF-L ANGELES	Fimmel, R. O.	ARC	Schubert, G.	NAS 2-9131	1596
11	UNIV CALIF-L ANGELES	Corrigan, J. P.	GSFC	Plavec, M. J.	NAG 5-112	1588
11	UNIV CALIF-L ANGELES	Corrigan, J. P.	GSFC	Jura, M.	NAG 5-116	1589
11	UNIV CALIF-L ANGELES	Liberatore, F. J.	GSFC	Jura, M.	NAS 5-25657	1600

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11	UNIV CALIF-L ANGELES	Corrigan, J. P.	GSFC	Russell, C. T.	NAS 5-25772	1601
11	UNIV CALIF-L ANGELES	Kupperman, J. F., Jr.	GSFC	Jura, M.	NSG 5169	1633
11	UNIV CALIF-L ANGELES	Boggett, A.	GSFC	Plavec, M. J.	NSG 5272	1636
11	UNIV CALIF-L ANGELES	Boggett, A.	GSFC	Aller, L. H.	NSG 5358	1638
11	UNIV CALIF-L ANGELES	Boggett, A.	GSFC	Jura, M.	NSG 5377	1639
11	UNIV CALIF-L ANGELES	Jones, J. B., Jr.	MSFC	Margon, B. H.	NAS 8-33353	1604
11	UNIV CALIF-L ANGELES	Weiler, E. J.	HD-SC	Jura, M.	NAGW 80	1593
11	UNIV CALIF-L ANGELES	Kaluzienski, L. J.	HD-SC	Kennel, C. F.	NSG 7341	1647
11	UNIV CALIF-L ANGELES	Weiler, E. J.	HD-SC	Jura, M.	NSG 7621	1656
11	UNIV CALIF-RIVERSIDE	Gilman, D. A.	HD-SC	White, R. S.	NGR 05-008-022	1658
11	UNIV CALIF-SAN DIEGO	Haughney, L. C.	ARC	Willner, S. P.	NGR 05-005-055	1694
11	UNIV CALIF-SAN DIEGO	Boggett, A.	GSFC	Worrall, D. M.	NAG 5-63	1661
11	UNIV CALIF-SAN DIEGO	Stouffer, C. G.	GSFC	Tabakoff, W.	NAS 5-22375	1671
11	UNIV CALIF-SAN DIEGO	White, R. A.	GSFC	Harms, R. J.	NAS 5-24463	1672
11	UNIV CALIF-SAN DIEGO	Shannon, J. L.	GSFC	Beaver, F. A.	NAS 5-25054	1673
11	UNIV CALIF-SAN DIEGO	Davis, M. A.	GSFC	Peterson, L. F.	NAS 5-25448	1674
11	UNIV CALIF-SAN DIEGO	Jones, J. B.	MSFC	Marscher, A. P.	NAG 8-315	1663
11	UNIV CALIF-SAN DIEGO	Jones, J. B.	MSFC	Burbidge, F. M.	NAG 8-340	1664
11	UNIV CALIF-SAN DIEGO	Stone, J. F.	MSFC	Worrall, D. M.	NAG 8-377	1665
11	UNIV CALIF-SAN DIEGO	Stone, J. F.	MSFC	Peterson, L. F.	NAS 8-27974	1677
11	UNIV CALIF-SAN DIEGO	Kaluzienski, L. J.	HD-SC	Felten, J. F.	NAGW 12	1666
11	UNIV CALIF-SAN DIEGO	Weiler, E. J.	HD-SC	Canfield, R. C.	NAGW 30	1668
11	UNIV CALIF-SAN DIEGO	Kaluzienski, L. J.	HD-SC	Gould, R. J.	NGL 05-005-004	1685
11	UNIV CALIF-SAN DIEGO	Weiler, E. J.	HD-SC	Mellwain, C. F.	NGR 05-009-188	1696
11	UNIV CALIF-SAN DIEGO	Kaluzienski, L. J.	HD-SC	Rothschild, R. F.	NSG 7294	1710
11	UNIV CALIF-SAN DIEGO	Weiler, E. J.	HD-SC	Burbidge, M.	NSG 7377	1711
11	UNIV CALIF-SAN DIEGO	Kaluzienski, L. J.	HD-SC	Lingenfelter, R. F.	NSG 7541	1713
11	UNIV CALIF-SAN DIEGO	Murphy, R. F.	HD-SL	Alfven, H.	NGR 05-009-110	1695
11	UNIV CALIF-S CRUZ	Black, D. C.	ARC	Bodenheimer, P.	NCA 2-690001	1760
11	UNIV CALIF-S CRUZ	Boggett, A.	GSFC	Herbig, G. H.	NSG 5361	1762
11	UNIV CALIF-S CRUZ	Swearingen, J. C.	MSFC	Miller, J. S.	NAG 8-352	1758
11	UNIV CALIF-S CRUZ	Jones, J. B., Jr.	MSFC	Davies, R. L.	NAS 8-33347	1759
11	UNIV CALIF-S CRUZ	Boggett, N. W.	HD-SC	Rank, D. M.	NGR 05-061-015	1761
11	UNIV CALIF-S CRUZ	Weiler, E. J.	HD-SC	Miller, J. S.	NSG 7503	1763
11	UNIV OF CHICAGO	Hall, C. F.	ARC	Simpson, J. A.	NAS 2-6551	2208
11	UNIV OF CHICAGO	Smith, B. F.	ARC	Miller, R. H.	NCA 2-108902	2216
11	UNIV OF CHICAGO	Haughney, L. C.	ARC	Harper, D. A., Jr.	NGR 14-001-227	2229
11	UNIV OF CHICAGO	Haughney, L. C.	ARC	Hildebrand, R. H.	NSG 2057	2231
11	UNIV OF CHICAGO	Boggett, A.	GSFC	Frisch, P. C.	NAG 5-53	2206
11	UNIV OF CHICAGO	Corrigan, J. P.	GSFC	Simpson, J. A.	NAS 5-25731	2211
11	UNIV OF CHICAGO	Ormes, J. F.	GSFC	Muller, D.	NAS 5-26076	2212
11	UNIV OF CHICAGO	Underwood, C.	GSFC	Meyer, P.	NAS 5-26099	2213
11	UNIV OF CHICAGO	Kupperman, J. F., Jr.	GSFC	Simpson, J. A.	NSG 5202	2232
11	UNIV OF CHICAGO	Kupperman, J. F., Jr.	GSFC	Simpson, J. A.	NSG 5311	2233
11	UNIV OF CHICAGO	Boggett, A.	GSFC	Frisch, P. C.	NSG 5405	2235
11	UNIV OF CHICAGO	Jones, J. B., Jr.	MSFC	Meyer, P.	NAS 8-33350	2215
11	UNIV OF CHICAGO	Kaluzienski, L. J.	HD-SC	Parker, F. N.	NGL 14-001-001	2217
11	UNIV OF CHICAGO	Gilman, D. A.	HD-SC	Meyer, P.	NGL 14-001-005	2218
11	UNIV OF CHICAGO	Gilman, D. A.	HD-SC	Simpson, J. A.	NGL 14-001-006	2219
11	UNIV OF CHICAGO	Weiler, E. J.	HD-SC	Hobbs, L. M.	NGR 14-001-147	2227
11	UNIV OF CHICAGO	Brunk, W. F.	HD-SL	Hildebrand, R. H.	NAGW 4	2207
11	UNIV COLORADO-BOLDR	Corrigan, J. P.	GSFC	Snow, T. P.	NAG 5-15	1850
11	UNIV COLORADO-BOLDR	Boggett, A.	GSFC	Conti, P. S.	NAG 5-78	1853
11	UNIV COLORADO-BOLDR	Boggett, A.	GSFC	Linsky, J. I.	NAG 5-82	1854
11	UNIV COLORADO-BOLDR	Guidotti, J.	GSFC	Cash, W. C.	NAG 5-96	1855
11	UNIV COLORADO-BOLDR	Corrigan, J. P.	GSFC	Shull, J. M.	NAG 5-111	1856
11	UNIV COLORADO-BOLDR	Boggett, A.	GSFC	Conti, P. S.	NAS 5-22833	1867
11	UNIV COLORADO-BOLDR	Boggett, A.	GSFC	Linsky, J. I.	NAS 5-23274	1868

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11	UNIV COLORADO-BOLDR	Bogges, A.	GSFC	Snow, T. P.	NSG 5300	1888
11	UNIV COLORADO-BOLDR	Guidotti, J.	GSFC	Snow, T. P.	NSG 5303	1889
11	UNIV COLORADO-BOLDR	Wende, C. D.	GSFC	Snow, T. P., Jr.	NSG 5355	1891
11	UNIV COLORADO-BOLDR	Bogges, A.	GSFC	Shull, J. M.	NSG 5365	1892
11	UNIV COLORADO-BOLDR	Manning, H. S.	MSFC	Snow, T. P.	NAG 8-300	1857
11	UNIV COLORADO-BOLDR	Jones, J. B., Jr.	MSFC	Ayres, T. R.	NAG 8-316	1858
11	UNIV COLORADO-BOLDR	Jones, J. B.	MSFC	Snow, T. P.	NAG 8-327	1859
11	UNIV COLORADO-BOLDR	Jones, J. B.	MSFC	Linsky, J. L.	NAG 8-334	1860
11	UNIV COLORADO-BOLDR	Swearingen, J. C.	MSFC	Cash, W. C.	NAG 8-353	1861
11	UNIV COLORADO-BOLDR	Stone, J. F.	MSFC	Simon, T. S.	NAG 8-382	1862
11	UNIV COLORADO-BOLDR	Dailey, C. C.	MSFC	Linsky, J. L.	NAS 8-33084	1875
11	UNIV COLORADO-BOLDR	Jones, J. B., Jr.	MSFC	Haisch, B. M.	NAS 8-33333	1876
11	UNIV COLORADO-BOLDR	Jones, J. B., Jr.	MSFC	McCray, R.	NAS 8-33338	1877
11	UNIV COLORADO-BOLDR	Jones, J. B., Jr.	MSFC	Ayres, T. R.	NAS 8-33342	1878
11	UNIV COLORADO-BOLDR	Kaluzienski, L. J.	HD-SC	McCray, R.	NSG 7128	1894
11	UNIV COLORADO-BOLDR	Roman, N. G.	HD-SC	Conti, P. S.	NSG 7430	1901
11	UNIV COLORADO-BOLDR	Roman, N. G.	HD-SC	Snow, T. P.	NSG 7477	1903
11	UNIV COLORADO-BOLDR	Weiler, E. J.	HD-SC	Snow, T. P.	NSG 7626	1908
11	UNIV COLORADO-BOLDR	Weiler, E. J.	HD-SC	Ashby, N.	NSG 7637	1909
11	UNIV COLORADO-DENVER	Bogges, A.	GSFC	Lane, A. L.	NSG 5394	1910
11	UNIV DC-MT VERNON SQ	Webster, W. H., Jr.	GSFC	Nottingham, W. C.	NGR 09-050-003	2020
11	UNIV DC-VAN NESS	Hobbs, R. W.	GSFC	Kasten, R.	NCA 5-95	2026
11	UNIV OF DELAWARE	Kupperian, J. E., Jr	GSFC	Shipman, H. L.	NSG 5144	1956
11	UNIV OF DENVER	Bogges, A.	GSFC	Lesh, J. R.	NSG 5367	1922
11	UNIV OF FLORIDA	Black, D. C.	ARC	Eichhorn, H. K.	NAG 2-46	2049
11	UNIV OF FLORIDA	Corrigan, J. P.	GSFC	Wood, F. B.	NAG 5-110	2050
11	UNIV OF HAWAII-MANOA	Haughney, L. C.	ARC	Becklin, E.	NAG 2-59	2155
11	UNIV OF HAWAII-MANOA	White, W. W.	GSFC	Jeffries, J. T.	NAS 5-25181	2160
11	UNIV OF HAWAII-MANOA	Kupperian, J. E., Jr	GSFC	Boesgaard, A. M.	NSG 5231	2172
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HD-SL	Cruikshank, D. P.	NAGW 61	2158
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HD-SL	Unavailable	NAGW 65	2159
11	UNIV OF HAWAII-MANOA	Weir, J. F.	HD-SL	Jeffries, J. T.	NASW 2801	2164
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HD-SL	Jeffries, J. T.	NASW 3159	2165
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HD-SL	Jeffries, J. T.	NGL 12-001-057	2167
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HD-SL	McCord, T. B.	NSG 7323	2177
11	UNIV OF HAWAII-MANOA	Chipman, E.	HD-ST	Jeffries, J. T.	NGL 12-001-011	2166
11	UNIV ILLINOIS-URBANA	Gull, T. R.	GSFC	Dickel, J. R.	NAG 5-84	2247
11	UNIV ILLINOIS-URBANA	Bogges, A.	GSFC	Lamb, S. A.	NAG 5-85	2248
11	UNIV ILLINOIS-URBANA	Donn, B. D.	GSFC	Snyder, L. E.	NSG 5278	2264
11	UNIV ILLINOIS-URBANA	Kupperian, J. E., Jr	GSFC	Crutcher, R. M.	NSG 5294	2265
11	UNIV ILLINOIS-URBANA	Jones, J. B.	MSFC	Lamb, D. Q.	NAG 8-310	2249
11	UNIV ILLINOIS-URBANA	Jones, J. B.	MSFC	Dickel, J. R.	NAG 8-317	2250
11	UNIV ILLINOIS-URBANA	Opp, A. G.	HD-SC	Pines, D.	NSG 7598	2269
11	UNIV ILLINOIS-URBANA	Kaluzienski, L. J.	HD-SC	Lamb, D. Q.	NSG 7653	2270
11	UNIV ILLINOIS-URBANA	Brunk, W. E.	HD-SL	Dickel, J. R.	NGR 14-005-176	2255
11	UNIV OF IOWA	Fimmel, R. O.	ARC	VanAllen, J. A.	NAS 2-6553	2352
11	UNIV OF IOWA	Corrigan, J. P.	GSFC	Gurnett, D. A.	NAS 5-11279	2354
11	UNIV OF IOWA	Stone, R. G.	GSFC	Gurnett, D. A.	NAS 5-25999	2364
11	UNIV OF IOWA	Corrigan, J. P.	GSFC	Gurnett, D. A.	NAS 5-26125	2365
11	UNIV OF IOWA	Brunk, W. E.	HD-SL	Neff, J. S.	NSG 7412	2376
11	UNIV MARYLAND-BALT	Roman, N. G.	HD-SC	Misner, C. W.	NGR 21-002-010	2516
11	UNIV MARYLAND-COL PK	Bogges, A.	GSFC	Wilson, A. S.	NAG 5-54	2524
11	UNIV MARYLAND-COL PK	Bogges, A.	GSFC	Ahearn, M. F.	NAG 5-74	2525
11	UNIV MARYLAND-COL PK	Ogilvie, K. W.	GSFC	Coplan, M. A.	NAS 5-25472	2540
11	UNIV MARYLAND-COL PK	Corrigan, J. P.	GSFC	Gloeckler, G.	NAS 5-25735	2542
11	UNIV MARYLAND-COL PK	Ormes, J. F.	GSFC	Yodh, G. B.	NAS 5-26098	2544
11	UNIV MARYLAND-COL PK	Baurer, S.	GSFC	Ponnamperuma, C.	NAS 5-26294	2545
11	UNIV MARYLAND-COL PK	Klingensmith, D. A.	GSFC	Rosenfeld, A.	NCA 5-26	2554

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11	UNIV MARYLAND-COL PK	Hobbs, R. W.	GSFC	Trasco, J. D.	NCC 5-9	2558
11	UNIV MARYLAND-COL PK	Wolff, C.	GSFC	Rose, W.	NGT 21-002-801	2574
11	UNIV MARYLAND-COL PK	Cline, T.	GSFC	Wentzel, D. G.	NGT 21-002-802	2575
11	UNIV MARYLAND-COL PK	Bolt, E. A.	GSFC	Boldt, E. A.	NGT 21-002-804	2577
11	UNIV MARYLAND-COL PK	Ramaty, R.	GSFC	Holmgren, H. D.	NSG 5298	2590
11	UNIV MARYLAND-COL PK	Boggess, A.	GSFC	Harrington, J. P.	NSG 5390	2594
11	UNIV MARYLAND-COL PK	Boggess, A.	GSFC	Bell, R. A.	NSG 5399	2595
11	UNIV MARYLAND-COL PK	Corrigan, J. P.	GSFC	Wu, C. S.	NSG 5408	2597
11	UNIV MARYLAND-COL PK	Pearl, J. C.	GSFC	Khanna, R. K.	NSG 5424	2599
11	UNIV MARYLAND-COL PK	Jones, J. B.	MSFC	Wilson, A. S.	NAG 8-307	2528
11	UNIV MARYLAND-COL PK	Jones, J. B.	MSFC	Wilson, A. S.	NAG 8-329	2529
11	UNIV MARYLAND-COL PK	Swearingen, J. C.	MSFC	Wilson, A. S.	NAG 8-349	2530
11	UNIV MARYLAND-COL PK	Stone, J. F.	MSFC	Erickson, W. C.	NAG 8-369	2531
11	UNIV MARYLAND-COL PK	Stone, J. F.	MSFC	Matthews, D. L.	NAG 8-379	2532
11	UNIV MARYLAND-COL PK	Jones, J. B., Jr.	MSFC	Scott, J. S.	NAS 8-33329	2546
11	UNIV MARYLAND-COL PK	Jones, J. B., Jr.	MSFC	Erickson, W. C.	NAS 8-33346	2547
11	UNIV MARYLAND-COL PK	Jones, J. B., Jr.	MSFC	Wilson, A. S.	NAS 8-33358	2548
11	UNIV MARYLAND-COL PK	Gilman, D. A.	HD-SC	Earl, J. A.	NGR 21-002-066	2561
11	UNIV MARYLAND-COL PK	Roman, N. G.	HD-SC	Griem, H. R.	NGR 21-002-073	2562
11	UNIV MARYLAND-COL PK	Gilman, D. A.	HD-SC	Gloeckler, G.	NGR 21-002-224	2565
11	UNIV MARYLAND-COL PK	Kaluzienski, L. J.	HD-SC	Scott, J. S.	NSG 7555	2610
11	UNIV MARYLAND-COL PK	Brunk, W. E.	HD-SL	A'Hearn, M. F.	NSG 7322	2603
11	UNIV OF MASS-AMHERST	Fimmel, R. O.	ARC	McGill, G. E.	NAS 2-9129	2826
11	UNIV OF MASS-AMHERST	Eiband, A. M.	GSFC	Yngvesson, K. S.	NAS 5-26151	2827
11	UNIV OF MASS-AMHERST	Brunk, W. E.	HD-SL	Irvine, W. M.	NGL 22-010-023	2829
11	UNIV MICH-ANN ARBOR	Hall, C. F.	ARC	Donahue, T. M.	NAS 2-9126	2867
11	UNIV MICH-ANN ARBOR	Hall, C. F.	ARC	Nagy, A. F.	NAS 2-9130	2868
11	UNIV MICH-ANN ARBOR	Corrigan, J. P.	GSFC	Atreya, S. K.	NAG 5-109	2857
11	UNIV MICH-ANN ARBOR	Boggess, A.	GSFC	Kirshner, R.	NSG 5366	2917
11	UNIV MICH-ANN ARBOR	Jones, J. B.	MSFC	Patterson, J.	NAG 8-318	2858
11	UNIV MICH-ANN ARBOR	Jones, J. B.	MSFC	Kirshner, R.	NAG 8-341	2859
11	UNIV MICH-ANN ARBOR	Weiler, E. J.	HD-SC	Hiltner, W. A.	NGR 23-005-464	2903
11	UNIV MICH-ANN ARBOR	Weiler, E. J.	HD-SC	Hegy, D. J.	NSG 7608	2924
11	UNIV MICH-ANN ARBOR	Bohlin, J. D.	HD-ST	Mohler, O. C.	NGL 23-005-275	2898
11	U MINN-MNPLS-ST PAUL	Corrigan, J. P.	GSFC	Kellogg, P. J.	NAS 5-11310	2935
11	U MINN-MNPLS-ST PAUL	Stone, R.	GSFC	Kellogg, P. J.	NAS 5-25753	2939
11	U MINN-MNPLS-ST PAUL	Underwood, C.	GSFC	Waddington, C. J.	NAS 5-26056	2940
11	U MINN-MNPLS-ST PAUL	Boggess, A.	GSFC	Davidson, K.	NSG 5397	2951
11	U MINN-MNPLS-ST PAUL	Stone, J. F.	MSFC	Waddington, C. J.	NAS 8-27977	2941
11	U MINN-MNPLS-ST PAUL	Gilman, D. A.	HD-SC	Waddington, C. J.	NGR 24-005-050	2945
11	U MINN-MNPLS-ST PAUL	Boggess, N. W.	HD-SC	Ney, E.	NSG 2014	2947
11	UNIV MO-ST LOUIS	Boggess, A.	GSFC	Lamb, S. A.	NSG 5400	3000
11	UNIV NEBRASKA-LINCOLN	Boggess, A.	GSFC	Schmidt, E. G.	NSG 5391	3027
11	UNIV NEW HAMP-DURHAM	Davis, M. A.	GSFC	Lockwood, J. A.	NAS 5-25420	3052
11	UNIV NEW HAMP-DURHAM	Gilman, D. A.	HD-SC	Chupp, E. L.	NGL 30-002-021	3056
11	UNIV NEW HAMP-DURHAM	Kaluzienski, L. J.	HD-SC	Webber, W. R.	NGR 30-002-052	3057
11	UNIV NEW HAMP-DURHAM	Gilman, D. A.	HD-SC	Lockwood, J. A.	NSG 7481	3061
11	UNIV OF NOTRE DAME	Haggard, J.	LERC	Kanury, M.	NAS 3-21018	2325
11	UNIV OKLAHOMA-NORMAN	Kupperian, J. E., Jr	GSFC	Herczeg, T.	NSG 5257	3617
11	UNIV OKLAHOMA-NORMAN	Stone, J. F.	MSFC	Chincarni, G.	NAG 8-372	3608
11	UNIV OKLAHOMA-NORMAN	Jones, J. B., Jr.	MSFC	Chincarni, G.	NAS 8-33330	3611
11	UNIV OREGON-EUGENE	Kaluzienski, L. J.	HD-SC	Kemp, J. C.	NAGW 7	3635
11	UNIV OREGON-EUGENE	Weiler, E. J.	HD-SC	Zimmerman, R. L.	NSG 7639	3640
11	UNIV OREGON-EUGENE	Brunk, W. E.	HD-SL	Kemp, J. C.	NSG 7531	3639
11	UNIV OF PENNSYLVANIA	Boggess, A.	GSFC	Koch, R. H.	NSG 5296	3752
11	UNIV OF PENNSYLVANIA	Jones, J. B.	MSFC	Koch, R. H.	NAG 8-346	3744
11	UNIV OF PENNSYLVANIA	Jones, J. B., Jr.	MSFC	Shen, B. S.	NAS 8-33336	3746
11	UNIV OF PITTSBURGH	Black, D. C.	ARC	Gatewood, G. D.	NAG 2-53	3753

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11	UNIV OF PITTSBURGH	Bogges, A.	GSFC	Hapke, B.	NSG 5362	3770
11	UNIV OF PITTSBURGH	Boyce, J. M.	HD-SL	Hapke, B.	NSG 7147	3772
11	UNIV OF ROCHESTER	Haughney, L. C.	ARC	Pipher, J. L.	NSG 2343	3359
11	UNIV OF ROCHESTER	Bogges, A.	GSFC	Heffer, H. L.	NAG 5-46	3356
11	UNIV OF ROCHESTER	Kupperman, J. E., Jr	GSFC	Vanhorn, H. M.	NSG 5354	3360
11	UNIV OF ROME	Bavely, J. C.	HD-TN	Broghio, L.	NASW 2135	4430
11	UNIV OF SOUTHERN CAL	Fimmel, R. O.	ARC	Judge, D. L.	NAS 2-6558	1791
11	UNIV OF SOUTHERN CAL	Kupperman, J. E., Jr.	GSFC	Peters, G. J.	NSG 5356	1804
11	UNIV OF SOUTHERN CAL	Bogges, A.	GSFC	Barry, D. C.	NSG 5412	1805
11	UNIV OF SOUTHERN CAL	Bogges, A.	GSFC	Peters, G. J.	NSG 5422	1806
11	UNIV OF SOUTHERN CAL	Murphy, R. E.	HD-SL	Broadfoot, A. L.	NAGW 62	1790
11	UNIV OF SOUTHERN CAL	Chipman, E.	HD-ST	Rhodes, E. J.	NAGW 13	1787
11	UNIV TENNESSEE-KNOXV	Harris, J. W.	JSC	Taylor, L. A.	NGL 43-001-140	3840
11	UNIV TEXAS-AUSTIN	Haughney, L. C.	ARC	Evans, N. J., II	NSG 2345	4017
11	UNIV TEXAS-AUSTIN	Bogges, A.	GSFC	Parsons, S. B.	NAG 5-80	3983
11	UNIV TEXAS-AUSTIN	Liberatore, F. J.	GSFC	Trafton, L. M.	NAS 5-25656	3987
11	UNIV TEXAS-AUSTIN	White, W. W.	GSFC	Silverberg, E. C.	NAS 5-25948	3990
11	UNIV TEXAS-AUSTIN	Bogges, A.	GSFC	VandenBout, P. A.	NSG 5233	4021
11	UNIV TEXAS-AUSTIN	Kupperman, J. E., Jr	GSFC	Smith, M. A.	NSG 5309	4022
11	UNIV TEXAS-AUSTIN	Bogges, A.	GSFC	Parsons, S. B.	NSG 5328	4023
11	UNIV TEXAS-AUSTIN	Bogges, A.	GSFC	Wray, J. D.	NSG 5337	4024
11	UNIV TEXAS-AUSTIN	Bogges, A.	GSFC	Lambert, D. L.	NSG 5379	4025
11	UNIV TEXAS-AUSTIN	Bogges, A.	GSFC	Wills, B. J.	NSG 5387	4026
11	UNIV TEXAS-AUSTIN	Swearingen, J. C.	MSFC	Wheeler, J. C.	NAG 8-350	3984
11	UNIV TEXAS-AUSTIN	Snoddy, W. C.	MSFC	Henize, K. G.	NAS 8-31459	3992
11	UNIV TEXAS-AUSTIN	ODell, C. R.	MSFC	Lambert, D. L.	NAS 8-32905	3993
11	UNIV TEXAS-AUSTIN	ODell, C. R.	MSFC	Jefferys, W. H.	NAS 8-32906	3994
11	UNIV TEXAS-AUSTIN	Weiler, F. J.	HD-SC	Shields, G. A.	NSG 7232	4029
11	UNIV TEXAS-AUSTIN	Weiler, F. J.	HD-SC	Henize, K. G.	NSG 7371	4031
11	UNIV TEXAS-AUSTIN	Bogges, N. W.	HD-SC	Evans, N. J., II	NSG 7381	4032
11	UNIV TEXAS-AUSTIN	Brunk, W. F.	HD-SL	Wilson, W. J.	NGL 44-012-006	4007
11	UNIV TEXAS-AUSTIN	Brunk, W. F.	HD-SL	Douglas, J. N.	NGL 44-012-055	4008
11	UNIV TEXAS-AUSTIN	Brunk, W. F.	HD-SL	Smith, H. J.	NGR 44-012-152	4009
11	UNIV TEXAS-AUSTIN	Brunk, W. F.	HD-SL	Mulholland, J. D.	NGR 44-012-282	4011
11	UNIV OF TOLEDO	Bogges, A.	GSFC	Bopp, B. W.	NAG 5-67	3569
11	UNIV OF TOLEDO	Kupperman, J. E., Jr	GSFC	Bopp, B. W.	NSG 5207	3579
11	UNIV OF TOLEDO	Bogges, A.	GSFC	Morrison, N. D.	NSG 5359	3580
11	UNIV OF TOLEDO	Bogges, A.	GSFC	Witt, A. N.	NSG 5388	3591
11	UNIV OF TOLEDO	Weiler, F. J.	HD-SC	Witt, A. N.	NAGW 89	3570
11	UNIV OF TOLEDO	Rosendhal, J. D.	HD-SC	Witt, A. N.	NSG 7431	3583
11	UNIV OF TOLEDO	Weiler, F. J.	HD-SC	Witt, A. N.	NSG 7620	3584
11	UNIV OF TOLEDO	Murphy, R.	HD-SL	Delsemme, A. H.	NSG 7301	3582
11	UNIV OF UTAH	Brunk, W. F.	HD-SL	Shorthill, R. W.	NAGW 11	4083
11	UNIV OF VIRGINIA	Bogges, A.	GSFC	Thuan, T. X.	NAG 5-61	4210
11	UNIV OF VIRGINIA	Johnson, G.	GSFC	OConnell, R. W.	NAS 5-22346	4217
11	UNIV OF VIRGINIA	Stecher, T. P.	GSFC	OConnell, R. W.	NAS 5-26110	4221
11	UNIV OF VIRGINIA	White, J.	MSFC	Sarazin, C. L.	NAG 8-308	4212
11	UNIV OF VIRGINIA	Stone, J. F.	MSFC	Thuan, T. X.	NAG 8-375	4213
11	UNIV OF VIRGINIA	Jones, J. B., Jr	MSFC	Thuan, X.	NAS 8-33327	4223
11	UNIV OF VIRGINIA	Jones, J. B., Jr.	MSFC	Sarazin, C. L.	NAS 8-33348	4224
11	UNIV OF VIRGINIA	Brunk, W. F.	HD-SL	Ianna, P. A.	NSG 7364	4234
11	UNIV OF WASHINGTON	Bogges, A.	GSFC	Bohm, K. H.	NAG 5-45	4304
11	UNIV OF WASHINGTON	Bogges, A.	GSFC	Bohm-vitense, E.	NSG 5240	4337
11	UNIV OF WASHINGTON	Bogges, A.	GSFC	Wallerstein, G.	NSG 5374	4339
11	UNIV OF WASHINGTON	Bogges, A.	GSFC	Szkody, P.	NSG 5395	4340
11	UNIV OF WASHINGTON	Bogges, A.	GSFC	Bohm-vitense, E.	NSG 5398	4341
11	UNIV OF WASHINGTON	Wende, C.	GSFC	Lin, C. S.	NSG 5410	4342
11	UNIV OF WASHINGTON	Jones, J. B.	MSFC	Wallerstein, G.	NAG 8-342	4305

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11	UNIV OF WASHINGTON	Swearingen, J. C.	MSFC	Sullivan, W. T.	NAG 8-359	4306
11	UNIV OF WASHINGTON	Swearingen, J. C.	MSFC	Szkody, P.	NAG 8-361	4307
11	UNIV OF WASHINGTON	Swearingen, J. C.	MSFC	Boynton, P. E.	NAG 8-364	4308
11	UNIV OF WASHINGTON	Stone, J. F.	MSFC	Boynton, P. E.	NAG 8-366	4309
11	UNIV OF WASHINGTON	Stone, J. F.	MSFC	Bohm-vitense, E.	NAG 8-378	4310
11	UNIV OF WASHINGTON	Jones, J. B., Jr.	MSFC	Szkody, P.	NAS 8-33337	4319
11	UNIV OF WASHINGTON	Jones, J. B., Jr.	MSFC	Boynton, P. E.	NAS 8-33344	4320
11	UNIV OF WASHINGTON	Jones, J. B., Jr.	MSFC	Boynton, P. E.	NAS 8-33360	4321
11	UNIV OF WASHINGTON	Gilman, D. A.	HD-SC	Lord, J. J.	NSG 7318	4346
11	UNIV OF WASHINGTON	Brunk, W. E.	HD-SL	Greene, T. F.	NGR 48-002-142	4330
11	UNIV WISC-MADISON	Eiband, A. M.	GSFC	Anderson, C. M.	NAS 5-22349	4370
11	UNIV WISC-MADISON	White, R. A.	GSFC	Bless, R. C.	NAS 5-24487	4375
11	UNIV WISC-MADISON	Sours, W.	GSFC	Code, A. D.	NAS 5-25487	4379
11	UNIV WISC-MADISON	Vitagliano, H. D.	GSFC	Savage, B. C.	NAS 5-25714	4381
11	UNIV WISC-MADISON	Eiband, A. M.	GSFC	Code, A. D.	NAS 5-26055	4383
11	UNIV WISC-MADISON	Campbell, C. E.	GSFC	Kraushaar, W. L.	NAS 5-26078	4384
11	UNIV WISC-MADISON	Guidotti, T.	GSFC	Code, A. D.	NGL 50-002-013	4391
11	UNIV WISC-MADISON	Bissell, E. E.	GSFC	Kraushaar, W. L.	NGL 50-002-044	4392
11	UNIV WISC-MADISON	Kuppenan, J. L., Jr.	GSFC	Savage, B. D.	NSG 5181	4400
11	UNIV WISC-MADISON	Boggett, A.	GSFC	Savage, B. D.	NSG 5241	4402
11	UNIV WISC-MADISON	Boggett, A.	GSFC	Doherty, L. R.	NSG 5242	4403
11	UNIV WISC-MADISON	Boggett, A.	GSFC	Code, A. D.	NSG 5363	4406
11	UNIV WISC-MADISON	Jones, J. B.	MSFC	Kraushaar, W. L.	NAG 8-319	4364
11	UNIV WISC-MADISON	Jones, J. B.	MSFC	Cassinelli, J. P.	NAG 8-345	4365
11	UNIV WISC-MADISON	Jones, J. B., Jr.	MSFC	Cassinelli, J. P.	NAS 8-33340	4388
11	UNIV WISC-MADISON	Weiler, E. J.	HD-SC	Code, A. D.	NSG 7050	4407
11	UTAH STATE UNIV	Corrigan, J. P.	GSFC	Rant, W. J.	NAG 5-121	4096
11	VANDERBILT UNIVERSITY	Weiler, E. J.	HD-SC	Weedman, D. W.	NSG 7343	3850
11	VANDERBILT UNIVERSITY	Roman, N. G.	HD-SC	Hall, D.	NSG 7453	3831
11	VANDERBILT UNIVERSITY	Weiler, E. J.	HD-SC	Hall, D.	NSG 7543	3852
11	VIRGINIA POLY INSTITUTE	Boggett, A.	GSFC	Guinan, E. F.	NSG 5375	3775
11	VIRGINIA POLY INSTITUTE	Jones, J. B.	MSFC	ODell, S. L.	NAG 8-314	4253
11	VIRGINIA POLY INSTITUTE	Swearingen, J. C.	MSFC	ODell, S. L.	NAG 8-348	4254
11	VIRGINIA POLY INSTITUTE	Jones, J. B., Jr.	MSFC	Dennison, B. K.	NAS 8-33359	4261
11	WASHINGTON STATE UNIV	Boggett, A.	GSFC	Lutz, J. H.	NSG 5383	4356
11	WASHINGTON UNIVERSITY	Corrigan, J. P.	GSFC	Smith, W. H.	NAG 5-108	3003
11	WASHINGTON UNIVERSITY	Stone, J. F.	MSFC	Israel, M. H.	NAS 8-27976	3006
11	WASHINGTON UNIVERSITY	Koluchek, L. J.	HD-SC	Klarmann, J.	NGR 26-008-001	3010
11	WASHINGTON UNIVERSITY	Weiler, E. J.	HD-SC	Smith, W. H.	NSG 7372	3016
11	WASHINGTON UNIVERSITY	Brunk, W. E.	HD-SL	Smith, W. H.	NSG 7334	3015
11	WESLEYAN UNIVERSITY	Gull, T. R.	GSFC	Herbst, W.	NAG 5-59	1935
11	WESLEYAN UNIVERSITY	Warner, J. R.	MSFC	Herbst, W.	NAG 8-335	1936
11	WESTERN KENTUCKY UNIV	Boggett, A.	GSFC	Hackney, R. L.	NSG 5238	2443
11	WHEATON COLLEGE	Boggett, A.	GSFC	Barker, T.	NSG 5376	2837
11	YALE UNIVERSITY	Eby, P.	MSFC	Parker, P. D.	NAS 8-33572	1939
12	ARIZONA STATE UNIV	Blanchard, D. P.	JSC	Moore, C. B.	NGT 03-001-800	1101
12	ARKANSAS STATE UNIV	Kohl, F. J.	LERC	Bennett, J. E.	NSG 3249	1196
12	ATLANTA UNIVERSITY	Kent, M. I.	MSFC	Reed, J. L.	NSG 8019	2093
12	BOWIE STATE COLLEGE	Gross, F. C.	GSFC	Rock, M.	NSG 5009	2476
12	CALIF INST OF TECH	Harris, J. W.	JSC	Wasserburg, G. J.	NGL 05-002-188	1236
12	CASE WESTERN RESERVE	Donn, B. D.	GSFC	Anderson, A. B.	NSG 5392	3462
12	CASE WESTERN RESERVE	Riley, T. J.	LERC	Angus, J.	NAS 3-21965	3422
12	CASE WESTERN RESERVE	Serafini, T. T.	LERC	Koenig, J. L.	NSG 3140	3440
12	CASE WESTERN RESERVE	Lauver, R. W.	LERC	Ritchey, W.	NSG 3241	3449
12	CASE WESTERN RESERVE	Lauver, R. W.	LERC	Ishida, H.	NSG 3272	3455
12	CASE WESTERN RESERVE	Hsu, L. C.	LERC	Koenig, J. L.	NSG 3276	3456
12	CASE WESTERN RESERVE	Jones, W. R.	LERC	Cahan, B. D.	NSG 3278	3459
12	CATHOLIC UNIVERSITY	Nava, D. F.	GSFC	Hunt, J. B.	NSG 5173	1963

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12	CLARK COLLEGE	Whitten, R. C.	ARC	Veluri, V. R.	NSG 2143	2094
12	CLEVELAND STATE UNIV	Gordon, W. A.	LERC	Megargle, R.	NSG 3308	3477
12	COLLEGE OF WM & MARY	Burks, H. D.	LARC	Kranbuehl, D. E.	NSG 1095	4129
12	COLORADO SCH OF MINE	Antoine, A. C.	LERC	Daniel, S. R.	NSG 3122	1811
12	COPPIN STATE COLLEGE	Halpert, G.	GSFC	McDermott, P. P.	NSG 5051	2478
12	CORNELL UNIVERSITY	Devincenzi, D. L.	HD-SB	Sagan, C. E.	NGR 33-010-101	3214
12	DREXEL UNIVERSITY	Torres, A. L.	WFC	Thornton, D. C.	NSG 6035	3669
12	HARVARD UNIVERSITY	Harris, J. W.	JSC	Hays, J. F.	NGL 22-007-247	2657
12	HOWARD UNIVERSITY	Murphy, R. E.	HD-SL	Jackson, W. M.	NSG 5071	2012
12	KENT STATE UNIV-KENT	Quattrone, P. D.	ARC	Madey, R.	NSG 2013	3480
12	LEHIGH UNIVERSITY	Boese, R. W.	ARC	Lovejoy, R. W.	NCA 2-380901	3676
12	LEHIGH UNIVERSITY	Harris, J. W.	JSC	Goldstein, J. I.	NGR 39-007-056	3679
12	MASS INST OF TECH	Quattrone, P. D.	ARC	Reid, R. C.	NGR 22-009-723	2761
12	MASS INST OF TECH	Harris, J. W.	JSC	Burns, R. C.	NGR 22-009-551	2758
12	MASS INST OF TECH	Brabbs, T. A.	LERC	Hoult, D. P.	NCC 3-15	2743
12	MASS INST OF TECH	Antoine, A. C.	LERC	Uhlmann, D. R.	NSG 3286	2794
12	MASS INST OF TECH	Geib, D. S.	HD-SB	Rich, A.	NGR 22-009-277	2754
12	MICHIGAN STATE UNIV	Seng, G. T.	LERC	Crouch, S. R.	NAG 3-93	2846
12	MICHIGAN STATE UNIV	Seng, G. T.	LERC	Enke, C. G.	NAG 3-107	2847
12	MISS UNIV FOR WOMEN	St.Clair, T. L.	LARC	Pratt, J. R.	NSG 1539	2980
12	MOREHOUSE COLLEGE	Pohly, J. G.	HD-LU	Hall, T. H.	NSG 7652	2145
12	MUSKINGUM COLLEGE	Charleston, L. J.	LERC	Wallace, W. J.	NAG 3-79	3486
12	MUSKINGUM COLLEGE	Charleston, L. J.	LERC	Wallace, W. J.	NSG 3278	3487
12	OLD DOMINION UNIV	Phillips, D. H.	LARC	Ake, R. L.	NSG 1193	4185
12	PENN STATE U-UNIV PK	Fewell, L. L.	ARC	Allcock, H. R.	NSG 2364	3723
12	PENN STATE U-UNIV PK	Devincenzi, D. L.	HD-SB	Wedler, F. C.	NSG 7515	3741
12	POLY INST OF NY	Fohlen, G. M.	ARC	Pearce, E. M.	NSG 2147	3271
12	POLY INST OF NY	Devincenzi, D. L.	HD-SB	Eirich, F. R.	NGR 33-006-070	3269
12	RENSSELAER POLY-NY	Comister, T. C.	MSFC	Glücksman, M. E.	NAS 8-32690	3282
12	RENSSELAER POLY-NY	Devincenzi, D. L.	HD-SB	Ferns, J. P.	NGR 33-018-148	3290
12	SAN FRANCISCO STATE UNIV	Devincenzi, D. L.	HD-SB	Orenberg, J. B.	NAGW 94	1316
12	SAN JOSE STATE UNIV	Miquel, J.	ARC	Yengoyan, L. S.	NCA 2-675004	1326
12	SAN JOSE STATE UNIV	Cagliostro, D. E.	ARC	Ballard, R. C.	NCC 2-4	1336
12	SAN JOSE STATE UNIV	Wydeven, T.	ARC	Spitze, L. A.	NCC 2-8	1337
12	SAN JOSE STATE UNIV	Heimbuch, A. H.	ARC	Ling, A. C.	NCC 2-28	1338
12	SAN JOSE STATE UNIV	Wydeven, T.	ARC	Spitze, L. A.	NCC 2-53	1342
12	SAN JOSE STATE UNIV	Kendrick, D. A.	ARC	Ling, A. C.	NCC 2-56	1343
12	SAN JOSE STATE UNIV	Colby, M. A.	ARC	Ling, A. C.	NCC 2-57	1344
12	SAN JOSE STATE UNIV	Fohlen, G. M.	ARC	Ling, A. C.	NCC 2-65	1345
12	SAN JOSE STATE UNIV	Rosser, R. W.	ARC	Selter, G.	NCC 2-81	1350
12	SAN JOSE STATE UNIV	Rosser, R. W.	ARC	Hyer, M. W.	NSG 2186	1352
12	SAN JOSE STATE UNIV	Fish, R. H.	ARC	Mayer, L. A.	NSG 2371	1356
12	STANFORD UNIVERSITY	Jaffe, R.	ARC	Jaffe, R.	NGT 05-020-800	1456
12	STANFORD UNIVERSITY	Wiskerchen, M. J.	HD-ST	Spreiter, J. R.	NAGW 86	1373
12	STATE U NY-STONY BRK	Harris, J. W.	JSC	Schaeffer, O. A.	NGL 33-015-174	3333
12	STATE U NY-STONY BRK	Brabbs, T. A.	LERC	Yang, C. H.	NCC 3-2	1329
12	TEXAS A&M UNIVERSITY	Gibson, E. K.	JSC	Young, V.	NAS 9-11	1331
12	TEXAS A&M UNIVERSITY	Devincenzi, D. L.	HD-SB	Nagvary, J.	NSG 7037	1334
12	TUSKEGEE INSTITUTE	Bryan, C. J.	KSC	Dillon, J. G.	NAG10-1	1039
12	UNIV ALA-BIRMINGHAM	Devincenzi, D. L.	HD-SB	Lacey, J. C., Jr	NGR 01-010-001	1038
12	UNIV ALA-HUNTSVILLE	Ladner, E. R.	MSFC	Hendricks, J. B.	NAS 8-33384	1053
12	UNIV ALA-HUNTSVILLE	Bannister, T. C.	MSFC	Harris, J. M.	NAS 8-33978	1064
12	UNIV CALIF-BERKELEY	Altman, R. L.	ARC	Goren, S. L.	NCA 2-50001	1524
12	UNIV CALIF-BERKELEY	Altman, R. L.	ARC	Williams, M. C.	NCA 2-50995	1528
12	UNIV CALIF-BERKELEY	Devincenzi, D. L.	HD-SB	Jukes, J. J.	NGR 05-003-460	1544
12	UNIV CALIF-DAVIS	Fish, R. H.	ARC	Needles, J. J.	NCC 2-26	1571
12	UNIV CALIF-L ANGELES	Altman, R. L.	ARC	Smith, J. L.	NCA 2-390903	1609
12	UNIV CALIF-L ANGELES	Harris, J. W.	JSC	Wasson, T.	NGL 22-007-367	1615

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12	UNIV CALIF-SAN DIEGO	Harris, J. W.	JSC	Arnold, J. R.	NGL 05-009-148	1691
12	UNIV CALIF-SAN DIEGO	Harrison, J. O.	HD-ET	Marti, K.	NGL 05-009-150	1692
12	UNIV CALIF-S BARBARA	Kohl, F. J.	LERC	Steinberg, M.	NSG 3256	1754
12	UNIV OF CHICAGO	Harris, J. W.	JSC	Clayton, R. N.	NGL 14-001-169	2222
12	UNIV COLORADO-BOLDR	Whitten, R. C.	ARC	Castleman, A. W.	NSG 2248	1883
12	UNIV OF HAWAII-MANOA	Devincenzi, D. L.	HD-SB	Folsome, C. E.	NGR 12-001-109	2168
12	UNIV OF IDAHO	Rosser, R. W.	ARC	Korus, R. A.	NSG 2367	2187
12	UNIV ILLINOIS-URBANA	Devincenzi, D. L.	HD-SB	Woese, C. R.	NSG 7044	2267
12	UNIV MARYLAND-COL PK	Hochstein, L. I.	ARC	Ponnamperuma, C.	NCA 2-420001	2552
12	UNIV MARYLAND-COL PK	Mandel, A. D.	ARC	Goldsby, R. A.	NCA 2-420901	2553
12	UNIV MARYLAND-COL PK	Donn, B. D.	GSFC	Khanna, R. K.	NSG 5172	2585
12	UNIV MARYLAND-COL PK	Devincenzi, D. L.	HD-SB	Ponnamperuma, C.	NGR 21-002-317	2569
12	UNIV MARYLAND-COL PK	Young, R. S.	HD-SB	Ponnamperuma, C.	NSG 7469	2607
12	UNIV OF MASS-AMHERST	Guastafarro, A.	HD-SL	Huguenin, R. L.	NSG 7397	2832
12	UNIV OF MIAMI	Young, R. S.	HD-SB	Fox, S. W.	NGR 10-007-008	2085
12	UNIV MO-ROLLA	Graves, R. A.	LARC	Biolsi, L.	NSG 1369	2997
12	UNIV OF NEW MEXICO	Harris, J. W.	JSC	Keil, K.	NGL 32-004-063	3137
12	UNIV OF PITTSBURGH	Toth, R. A.	HD-EB	Kaufman, F.	NGR 39-011-161	3765
12	UNIV OF SANTA CLARA	Lawless, J. G.	ARC	Sweeney, M. A.	NCA 2-685005	1776
12	UNIV OF SANTA CLARA	Chang, S.	ARC	White, D. H.	NCA 2-685006	1777
12	UNIV TEXAS-AUSTIN	Wood, V.	JSC	Szebekely, V. G.	NAS 9-15567	3999
12	UNIV TEXAS-EL PASO	Lee, M.	JSC	Hoffer, J. M.	NSG 9062	4066
12	UNIV OF TOLEDO	Stearns, C. A.	LERC	Edwards, J. G.	NSG 3250	3577
12	UNIV OF UTAH	Seng, G. T.	LERC	Ursenbach, W. O.	NAG 3-27	4082
12	UNIV OF UTAH	Devincenzi, D. L.	HD-SB	Guillory, W. A.	NSG 7516	4095
12	UNIV OF WASHINGTON	Langhoff, S. R.	ARC	Davidson, E. R.	NSG 2365	4334
12	VIRGINIA POLY INST	Young, P. R.	LARC	Mason, J. G.	NSG 1085	4271
12	VIRGINIA POLY INST	Progar, D. J.	LARC	Wightman, J. P.	NSG 1124	4272
12	VIRGINIA POLY INST	St.Clair, A. K.	LARC	Taylor, L. T.	NSG 1428	4277
12	VIRGINIA POLY INST	St.Clair, T. L.	LARC	Wolfe, J. F.	NSG 1524	4278
12	VIRGINIA POLY INST	St.Clair, A. K.	LARC	McGrath, J. E.	NSG 1597	4279
12	WORCESTER POLY INST	Devincenzi, D. L.	HD-SB	Plumb, R. C.	NSG 7392	2844
12	YALE UNIVERSITY	Kohl, F. J.	LERC	Rosner, D. E.	NSG 3169	1945
13	ALABAMA A&M UNIV	Schafer, C. F.	MSFC	Lal, R. B.	NSG 8033	1002
13	ALABAMA A&M UNIV	Burns, R. E.	MSFC	Williams, A. C.	NSG 8068	1011
13	ARIZONA STATE UNIV	Curtis, H. B.	LERC	Wang, E. Y.	NAG 3-105	1090
13	BOWIE STATE COLLEGE	Caruso, A. J.	GSFC	Bhatia, M. S.	NGR 21-027-010	2474
13	BRIGHAM YOUNG UNIV	Fimmel, R. O.	ARC	Jones, D. E.	NAS 2-7358	4081
13	BROOKLYN COLLEGE	Meador, W. F.	LARC	Franco, V.	NSG 1378	3143
13	CALIF INST OF TECH	Chapman, G. T.	ARC	Liepmann, H. W.	NSG 7508	1270
13	CALIF INST OF TECH	Gemmell, J. D.	GSFC	Stone, E. C.	NAS 5-11066	1215
13	CALIF INST OF TECH	Wales, R. O.	GSFC	Stone, E. C.	NAS 5-20721	1216
13	CALIF INST OF TECH	Wende, C. D.	GSFC	Garmire, G. P.	NAS 5-25049	1219
13	CALIF INST OF TECH	Harris, J. W.	JSC	Epsen, S.	NGL 05-002-190	1237
13	CALIF INST OF TECH	Harris, J. W.	JSC	Albee, A. L.	NGL 05-002-338	1239
13	CALIF INST OF TECH	Harris, J. W.	JSC	Tombrello, T. A.	NGR 05-002-353	1246
13	CALIF INST OF TECH	DeLoach, A. C.	MSFC	Moore, R. L.	NAS 8-33215	1225
13	CALIF INST OF TECH	Henry, W.	HD-RP	Ahrens, T. J.	NSG 7458	1268
13	CALIF INST OF TECH	Bohlin, J. D.	HD-ST	Goldreich, P.	NSG 7342	1265
13	CAL STATE U-FULLERTN	Boese, R. W.	ARC	Nanes, R.	NCA 2-253901	1289
13	CAL STATE U-NRTHRDGE	Chipman, E.	HD-ST	Martin, S. F.	NAGW 27	1300
13	CAL STATE U-NRTHRDGE	Bohlin, J. D.	HD-ST	Chapman, G.	NSG 7456	1305
13	CASE WESTERN RESERVE	Kosmahl, H. G.	LERC	Hazony, D.	NAG 3-24	3404
13	CASE WESTERN RESERVE	Evans, J.	LERC	Kapoor, V. J.	NAG 3-80	3412
13	CASE WESTERN RESERVE	Purvis, C. K.	LERC	Gordan, W. L.	NSG 3197	3442
13	CASE WESTERN RESERVE	Cochran, T. H.	LERC	Ostrach, S.	NSG 3221	3447
13	CASE WESTERN RESERVE	Schaefer, D. A.	MSFC	Ostrach, S.	NAS 8-33015	3427
13	CATHOLIC UNIVERSITY	Jones, F. C.	GSFC	Wernitz, C.	NGT 09-005-809	1960

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13	CATHOLIC UNIVERSITY	Dennis, B. R.	GSFC	Wernitz, C.	NSG 5066	1961
13	CATHOLIC UNIVERSITY	McAvoy, N.	GSFC	Kelley, G. L.	NSG 5111	1962
13	CATHOLIC UNIVERSITY	Hedin, A. E.	HD-ST	Whang, Y. C.	NGR 09-005-063	1959
13	CATHOLIC UNIVERSITY	Chipman, E.	HD-ST	Whang, Y. C.	NSG 7422	1964
13	CHRISTPHR NEWPRT COL	Byvik, C. E.	LARC	Buonocristiani, A. M.	NSG 1514	4115
13	CITY U N Y-GRAD SCHL	Temkin, A.	GSFC	Mittleman, M. H.	NSG 5334	3155
13	CLARKSON COL OF TECH	Barnes, C. M.	JSC	McNulty, P.	NSG 9059	3159
13	CLARKSON COL OF TECH	Fripp, A. L.	LARC	Carlson, F.	NSG 1572	3157
13	CLARKSON COL OF TECH	Williams, J. R.	MSFC	Subramanian, R. S.	NAS 8-32944	3156
13	CLEVELAND STATE UNIV	Baraona, C. R.	LERC	Goradia, C.	NAG 3-23	3464
13	COLLEGE OF WM & MARY	Stermer, R. L.	LARC	Moriarty, J. A.	NAG 1-33	4117
13	COLLEGE OF WM & MARY	Meador, W. E.	LARC	Zang, T. A.	NSG 1564	4131
13	COLLEGE OF WM & MARY	Fripp, A. L.	LARC	Sher, A.	NSG 1653	4134
13	COLORADO STATE UNIV	McKenzie, R. L.	ARC	She, C. Y.	NSG 2287	1835
13	COLORADO STATE UNIV	Exton, R. J.	LARC	She, C. Y.	NSG 1594	1833
13	COLORADO STATE UNIV	Nakanishi, S.	LERC	Etters, R. D.	NAG 3-34	1813
13	COLORADO STATE UNIV	Jones, W. R.	LERC	Spain, I. L.	NAGW 8	1819
13	COLORADO STATE UNIV	Hendricks, R. C.	LERC	Etters, R. D.	NGR 06-002-159	1831
13	COLORADO STATE UNIV	Mirtich, M. J.	LERC	Kaufman, H. R.	NSG 3086	1837
13	COLORADO STATE UNIV	Staskus, J. V.	LERC	Yadlowsky, E. J.	NSG 3145	1839
13	COLORADO STATE UNIV	Grier, N. T.	LERC	Kaufman, H. R.	NSG 3196	1840
13	CONCORDIA COL-MOORHD	Donn, B.	GSFC	Bailey, C. L.	NAS 5-26221	2930
13	CORNELL UNIVERSITY	Conrath, B. J.	GSFC	Gierasch, P. J.	NAS 5-23236	3203
13	CORNELL UNIVERSITY	Brown, G. V.	LERC	Ashcroft, N. W.	NSG 7487	3235
13	CORNELL UNIVERSITY	Birmingham, T. J.	HD-ST	Sudan, R. N.	NAGW 90	3202
13	CORNELL UNIVERSITY	Hedin, A. E.	HD-ST	Farley, D. T.	NGR 33-010-161	3217
13	DARTMOUTH COLLEGE	Cooper, D. M.	ARC	Christy, R. W.	NSG 2397	3041
13	DREXEL UNIVERSITY	Brooks, W. F.	ARC	Acquista, C.	NSG 2357	3664
13	DREXEL UNIVERSITY	Nelson, E. D.	GSFC	House, F. B.	NAS 5-22946	3657
13	DREXEL UNIVERSITY	Holland, A. C.	WFC	Acquista, C.	NSG 6019	3668
13	DREXEL UNIVERSITY	Whiting, E. E.	HD-RT	Rosen, G. H.	NSG 7491	3670
13	FISK UNIVERSITY	Stecker, F. W.	GSFC	Mickens, R. F.	NSG 5297	3812
13	FISK UNIVERSITY	Kroes, R. L.	MSFC	Silberman, F.	NSG 8060	3813
13	FLORIDA A&M UNIV	Temkin, A.	GSFC	Jones, H. W.	NSG 5307	2033
13	GEORGIA INST OF TECH	Fetler, C. E.	LERC	Wyvill, J. C.	NSG 3228	2137
13	GRAMBLING STATE UNIV	Hanssen, F. A.	MSFC	Cross, M. A.	NAG 8-2	2444
13	HAMPTON INSTITUTE	Jalufka, N. W.	LARC	Han, K. S.	NSG 1595	4151
13	HARVARD UNIVERSITY	Reed, E. I.	GSFC	Parkinson, W. H.	NSG 5176	2665
13	HARVARD UNIVERSITY	Snoddy, W. C.	MSFC	Vaiana, G. S.	NAS 8-31374	2649
13	HARVARD UNIVERSITY	Fallon, R. A.	MSFC	Turnbull, D.	NAS 8-32691	2650
13	HARVARD UNIVERSITY	Chipman, E.	HD-ST	Vaiana, G. S.	NAGW 2	2640
13	HARVARD UNIVERSITY	Birmingham, T. J.	HD-ST	Rosner, R.	NAGW 79	2641
13	HARVARD UNIVERSITY	Chipman, E.	HD-ST	Parkinson, W. H.	NGL 22-007-006	2654
13	HARVARD UNIVERSITY	Bohlin, J. D.	HD-ST	Parkinson, W. H.	NSG 5126	2664
13	HARVARD UNIVERSITY	Bohlin, J. D.	HD-ST	Vaiana, G. S.	NSG 7497	2679
13	HARVARD UNIVERSITY	Bohlin, J. D.	HD-ST	Vaiana, G. S.	NSG 7537	2681
13	HARVARD UNIVERSITY	Chipman, E.	HD-ST	Maxwell, A.	NSG 7648	2682
13	HOWARD UNIVERSITY	Miller, G. E.	GSFC	Halpern, J. B.	NAG 5-17	1995
13	HOWARD UNIVERSITY	Osantowski, J. F.	GSFC	Catchings, R. M.	NAG 5-79	1998
13	HOWARD UNIVERSITY	Yin, L. I.	GSFC	Tsang, T.	NGR 09-011-057	2008
13	HOWARD UNIVERSITY	Alcorn, G. E.	GSFC	DeLoatch, E. M.	NSG 5158	2013
13	HOWARD UNIVERSITY	O'Keefe, J. A.	GSFC	Wallace, W. J.	NSG 5186	2014
13	JOHNS HOPKINS UNIV	Fowler, W. S.	GSFC	Fastie, W. G.	NAS 5-25358	2484
13	JOHNS HOPKINS UNIV	DeLoach, A. C.	MSFC	Roelof, E. C.	NAS 8-33106	2490
13	JOHNS HOPKINS UNIV	Huang, N. E.	WFC	Phillips, O.	NGT 21-001-980	2499
13	JOHNS HOPKINS UNIV	Roman, N. G.	HD-SC	Moos, H. W.	NAGW 16	2481
13	JOHNS HOPKINS UNIV	Wiskerchen, M. J.	HD-ST	Krimigis, S. M.	NSG 7055	2506
13	LEHIGH UNIVERSITY	Williams, J. R.	MSFC	VanDerhoff, J. W.	NAS 8-32951	3674

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13	MASS INST OF TECH	Davis, M. A.	GSFC	Bridge, H. S.	NAS 5-11062	2716
13	MASS INST OF TECH	Ha, Jin, J. C.	LARC	Young, J. E.	NAG 1-12	2685
13	MASS INST OF TECH	Crowell, W. F.	LARC	Hollister, W. M.	NAG 1-100	2690
13	MASS INST OF TECH	Singh, J. J.	LARC	Greytak, T. J.	NSG 1551	2773
13	MASS INST OF TECH	Greene, G. C.	LARC	Harris, W. I.	NSG 1583	2774
13	MASS INST OF TECH	Reeves, F. A.	MSFC	Hitt, A. F.	NAS 8-32994	2734
13	MASS INST OF TECH	DeLoach, A. C.	MSFC	Sullivan, J. D.	NAS 8-33137	2735
13	MASS INST OF TECH	DeLoach, A. C.	MSFC	Frankenthal, S.	NAS 8-33138	2736
13	MASS INST OF TECH	Cauffman, D. P.	HD-ST	Bridge, H. S.	NGL 22-009-015	2746
13	MIAMI UNIVERSITY	Jalufka, E. W.	LARC	Wells, W. F.	NCC 1-12	3485
13	MICHIGAN STATE UNIV	Chipman, E.	HD-ST	Stein, R. F.	NSG 7293	2851
13	NEW MEX ST U-LAS CR	Krishen, K.	JSC	Carver, K.	NAS 9-16092	3128
13	NEW YORK UNIVERSITY	Darden, C. M.	LARC	Ting, L.	NSG 1576	3258
13	NEW YORK UNIVERSITY	Weiler, F. J.	HD-SC	Glassgold, A. F.	NGR 33-016-196	3254
13	N CAR CENTRAL UNIV	McAvoy, N.	GSFC	Jones, C. R.	NSG 5120	3377
13	NO CAROLINA STATE U	Yu, J. C.	LARC	Hodgson, T. H.	NAG 1-29	3379
13	NO CAROLINA STATE U	Meador, W. F.	LARC	Hassan, H. A.	NSG 1058	3388
13	NO CAROLINA STATE U	Long, F. R., Jr	LARC	Fornes, R. E.	NSG 1562	3394
13	OHIO STATE UNIV	Boese, R. W.	ARC	Rao, K. N.	NSG 2175	3514
13	OKLAHOMA STATE UNIV	Seiner, J. M.	LARC	McLaughlin, D. K.	NAG 1-10	3590
13	OLD DOMINION UNIV	Fowler, W.	GSFC	Becher, J.	NSG 5289	4207
13	OLD DOMINION UNIV	Hoell, J. M.	LARC	Copeland, G. F.	NAG 1-1	4153
13	OLD DOMINION UNIV	Holmes, H. K.	LARC	Zuckerwar, A. J.	NAG 1-15	4154
13	OLD DOMINION UNIV	Browell, E. V.	LARC	Copeland, G. F.	NCC 1-32	4170
13	OLD DOMINION UNIV	Melfi, L. T.	LARC	Brock, I. J.	NSG 1271	4179
13	OLD DOMINION UNIV	Wilson, J. W.	LARC	Harries, W. L.	NSG 1568	4199
13	OREGON GRADUATE CTR	McKenzie, R. L.	ARC	Massey, G. A.	NAG 2-9	3619
13	OREGON GRADUATE CTR	McKenzie, R. L.	ARC	Elliott, R. A.	NSG 2387	3620
13	OREGON STATE UNIV	Harris, J. W.	JSC	Schmitt, R. A.	NGL 38-002-039	3628
13	PENN STATE U-UNIV PK	Mumma, M. J.	GSFC	Nisbet, J. S.	NGT 39-009-800	3718
13	PENN STATE U-UNIV PK	Spencer, N. W.	GSFC	Nisbet, J. S.	NSG 5212	3736
13	PENN STATE U-UNIV PK	Staskus, J. V.	IFRC	Robinson, J. W.	NSG 3166	3726
13	PENN STATE U-UNIV PK	Staskus, J. V.	IFRC	Kendall, B. R.	NSG 3301	3731
13	PENN STATE U-UNIV PK	Kaiser, M. L.	HD-ST	Nisbet, J. S.	NGL 39-009-003	3715
13	POLY INST OF NY	Hedin, A. E.	HD-ST	Gross, S. H.	NAGW 51	3267
13	PRINCETON UNIVERSITY	McKenzie, R. L.	ARC	Miles, R. B.	NSG 2366	3089
13	PRINCETON UNIVERSITY	Donnelly, R. F.	GSFC	York, D. G.	NSG 5277	3044
13	PRINCETON UNIVERSITY	Bannister, T. C.	MSFC	Saville, D. A.	NAS 8-32614	3078
13	RENSSELAER POLY-NY	Meador, W. F.	LARC	Schwarz, H. J.	NSG 1628	3293
13	RENSSELAER POLY-NY	Jones, W. R.	IFRC	Lauer, J. I.	NSG 3170	3295
13	RENSSELAER POLY-NY	Lacy, L. I.	MSFC	Ross, S.	NAS 8-33074	3284
13	RICE UNIVERSITY	Taylor, H. A., Jr	GSFC	Cloutier, P. A.	NAS 5-23338	3875
13	RICE UNIVERSITY	Mumma, M. J.	GSFC	Chamberlain, J. W.	NGT 44-006-800	3891
13	RICE UNIVERSITY	Talley, D. H.	MSFC	Anderson, H. R.	NAS 8-33771	3882
13	RICE UNIVERSITY	Cauffman, D. P.	HD-ST	Michel, F. C.	NGL 44-006-012	3888
13	RICE UNIVERSITY	Schmerling, F. R.	HD-ST	Dessler, A. J.	NGR 44-006-137	3890
13	SAN FRAN STATE UNIV	Barnes, A.	ARC	Kilpatrick, T.	NCA 2-660806	1318
13	SO UNIV-BATON ROUGE	McClure, J. C.	MSFC	Collins, W. F.	NAG 8-4	2457
13	STANFORD UNIVERSITY	Brooks, W. F.	ARC	Fairbanks, W. M.	NAG 2-62	1368
13	STANFORD UNIVERSITY	Caroff, L. J.	ARC	Petrosian, V.	NCA 2-745008	1401
13	STANFORD UNIVERSITY	Arnold, J. O.	ARC	Heinemann, K.	NCC 2-30	1416
13	STANFORD UNIVERSITY	Arnold, J. O.	ARC	Heinemann, K.	NCC 2-46	1420
13	STANFORD UNIVERSITY	Chackerman, C.	ARC	Byer, R. L.	NCC 2-50	1421
13	STANFORD UNIVERSITY	McKenzie, R. L.	ARC	Byer, R. L.	NSG 2289	1461
13	STANFORD UNIVERSITY	Fellerman, K. D.	GSFC	Helliwell, R. A.	NAS 5-24409	1378
13	STANFORD UNIVERSITY	Wales, R. O.	GSFC	Wilcox, J. M.	NAS 5-24420	1379
13	STANFORD UNIVERSITY	Guidotti, J.	GSFC	Walker, A. B.	NSG 5131	1468
13	STANFORD UNIVERSITY	Potter, R. A.	MSFC	Everitt, C. W.	NAS 8-32355	1386

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13	STANFORD UNIVERSITY	Urban, E. W.	MSFC	Everitt, C. W.	NAS 8-32605	1387
13	STANFORD UNIVERSITY	Schwenk, F.	HD-RT	Harris, S. E.	NSG 7619	1477
13	STANFORD UNIVERSITY	Birmingham, T. J.	HD-ST	Sturrock, P. A.	NAGW 92	1374
13	STANFORD UNIVERSITY	Hedin, A. E.	HD-ST	Helliwell, R. A.	NGI 05-020-008	1437
13	STANFORD UNIVERSITY	Bohlin, J. D.	HD-ST	Sturrock, P. A.	NGL 05-020-272	1442
13	STANFORD UNIVERSITY	Chipman, E.	HD-ST	Tyler, G. L.	NSG 7552	1475
13	STATE U NY-STONY BRK	Harris, J. W.	JSC	Bence, A. E.	NGL 33-015-130	3332
13	STATE U NY-STONY BRK	Harris, J. W.	JSC	Papike, J. J.	NSG 9044	3347
13	STATE U NY-STONY BRK	Cochran, T. H.	LERC	Berlad, A. L.	NSG 3298	3339
13	TALLADEGA COLLEGE	Whitten, R. C.	ARC	Morrison, R. A.	NSG 2217	1023
13	TEXAS A&M UNIVERSITY	Matthews, R. E.	JSC	Rouse, J. W.	NAS 9-15451	3925
13	TEXAS A&M UNIVERSITY	Kennedy, R.	JSC	Thomas, R. E.	NAS 9-16059	3928
13	TEXAS A&M UNIVERSITY	Brown, G. V.	LERC	Ford, A. L.	NSG 3201	3944
13	TEXAS A&M UNIVERSITY	Nowakowski, M.	MSFC	Parker, D. L.	NAS 8-32527	3917
13	UNIV ALA-HUNTSVILLE	Hanssen, T.	MSFC	Wu, S. T.	NAS 8-28097	1040
13	UNIV ALA-HUNTSVILLE	Chappell, C. R.	MSFC	Comfort, R. H.	NAS 8-30563	1042
13	UNIV ALA-HUNTSVILLE	Parnell, T. A.	MSFC	Gregory, J. C.	NAS 8-31170	1043
13	UNIV ALA-HUNTSVILLE	Price, J. M.	MSFC	Christensen, D.	NAS 8-31293	1045
13	UNIV ALA-HUNTSVILLE	Vaughn, O. H.	MSFC	Hung, R. J.	NAS 8-31729	1046
13	UNIV ALA-HUNTSVILLE	Parnell, T. A.	MSFC	Gregory, J. C.	NAS 8-31895	1047
13	UNIV ALA-HUNTSVILLE	Urban, E. W.	MSFC	Karr, G. R.	NAS 8-32818	1048
13	UNIV ALA-HUNTSVILLE	DeLoach, A. C.	MSFC	Steinolfson, R. S.	NAS 8-33216	1051
13	UNIV ALA-HUNTSVILLE	Ross, B. B.	MSFC	Rush, J. E.	NAS 8-33731	1060
13	UNIV ALA-HUNTSVILLE	Fishman, G. J.	MSFC	Gregory, J. C.	NAS 8-33975	1062
13	UNIV ALA-HUNTSVILLE	Chappell, C. R.	MSFC	Comfort, R. H.	NAS 8-33982	1065
13	UNIV ALA-HUNTSVILLE	Green, J. L.	MSFC	Horwitz, J. L.	NGT 01-002-082	1069
13	UNIV ALA-HUNTSVILLE	Chipman, E.	HD-ST	Wu, S. T.	NAGW 9	1039
13	UNIV ALASKA-FAIRBANKS	Spencer, N. W.	GSFC	Rees, M. H.	NSG 5219	1084
13	UNIV OF ARIZONA	Pearl, J. C.	GSFC	Fink, U.	NCA 5-94	1149
13	UNIV OF ARIZONA	McAvoy, N.	GSFC	Lamb, W. E., Jr.	NSG 5302	1171
13	UNIV OF ARIZONA	Hedin, A. E.	HD-ST	Hsieh, K. C.	NGR 03-002-107	1156
13	UNIV OF ARIZONA	Williamson, P. R.	HD-ST	Sonett, C. P.	NSG 7024	1174
13	UNIV CALIF-BERKELEY	Kowalski, G. E.	GSFC	Anderson, K. A.	NAS 5-20079	1504
13	UNIV CALIF-BERKELEY	Davis, M. A.	GSFC	Mozer, F. S.	NAS 5-20080	1505
13	UNIV CALIF-BERKELEY	Wales, R. O.	GSFC	Heckman, H. K.	NAS 5-20995	1506
13	UNIV CALIF-BERKELEY	Guidotti, J.	GSFC	Mozer, F. S.	NGR 05-003-239	1539
13	UNIV CALIF-BERKELEY	Harris, J. W.	JSC	Reynolds, J. H.	NGL 05-003-409	1537
13	UNIV CALIF-BERKELEY	Sachse, G. W.	LARC	Chiao, R. Y.	NSG 1637	1549
13	UNIV CALIF-BERKELEY	Anderson, L. M.	LERC	Gustafson, T. K.	NAG 3-88	1479
13	UNIV CALIF-BERKELEY	Birmingham, T. J.	HD-ST	Hudson, M. K.	NAGW 75	1499
13	UNIV CALIF-BERKELEY	Bohlin, J. D.	HD-ST	Lin, R. P.	NSG 7527	1564
13	UNIV CALIF-DAVIS	Hansen, C. F.	ARC	Fong, C. Y.	NAS 2-10258	1566
13	UNIV CALIF-DAVIS	Cooper, D. M.	ARC	Fong, C. Y.	NSG 2383	1574
13	UNIV CALIF-DAVIS	Nelson, D.	GSFC	Coulson, K. L.	NAS 5-22964	1567
13	UNIV CALIF-IRVINE	Whiting, E. E.	HD-RT	Wallis, R. F.	NSG 7472	1584
13	UNIV CALIF-IRVINE	Birmingham, T. J.	HD-ST	Vanhoven, G.	NAGW 93	1578
13	UNIV CALIF-IRVINE	Chipman, E.	HD-ST	VanHoven, G.	NSG 7375	1583
13	UNIV CALIF-L ANGELES	Kowalski, G. E.	GSFC	Russell, C. T.	NAS 5-20064	1598
13	UNIV CALIF-L ANGELES	Hoffman, R. A.	GSFC	Coroniti, F. V.	NAS 5-25039	1599
13	UNIV CALIF-L ANGELES	Harris, J. W.	JSC	Kaplan, I. R.	NGR 05-007-289	1618
13	UNIV CALIF-L ANGELES	Rice, E. J.	LERC	Charwat, A. F.	NSG 3236	1630
13	UNIV CALIF-L ANGELES	Birmingham, T. J.	HD-ST	Kennel, C. F.	NAGW 78	1592
13	UNIV CALIF-L ANGELES	Taylor, W. W.	HD-ST	Holzer, R. E.	NGR 05-007-276	1617
13	UNIV CALIF-L ANGELES	Bohlin, J. D.	HD-ST	Ulrich, R. K.	NSG 7407	1648
13	UNIV CALIF-SAN DIEGO	Cochran, T. H.	LERC	Williams, F. A.	NSG 3296	1702
13	UNIV CALIF-SAN DIEGO	DeLoach, A. C.	MSFC	Svestka, Z.	NAS 8-32984	1678
13	UNIV CALIF-SAN DIEGO	Kaluzienski, L. J.	HD-SC	Petersen, L. E.	NGL 05-005-003	1684
13	UNIV CALIF-SAN DIEGO	Hedin, A. E.	HD-ST	McIlwain, C. E.	NGL 05-005-007	1686

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13	UNIV CALIF-SAN DIEGO	Chipman, E.	HD-ST	Peterson, L. F.	NSG 7161	1709
13	UNIV CALIF-SAN DIEGO	Chipman, E.	HD-ST	Canfield, R. C.	NSG 7406	1712
13	UNIV CALIF-S BARBARA	Brooks, W. F.	ARC	Vanyo, J.	NAG 2-27	1742
13	UNIV CALIF-S BARBARA	McKenzie, R. L.	ARC	Colson, W. B.	NAG 2-48	1743
12	UNIV CALIF-S BARBARA	Cassen, P.	ARC	Peale, S. J.	NCA 2-680805	1747
13	UNIV OF CHICAGO	Gallagher, W. F.	GSFC	Meyer, P.	NAS 5-20674	2209
13	UNIV OF CHICAGO	Davis, M. A.	GSFC	Simpson, J. A.	NAS 5-24430	2210
13	UNIV OF CHICAGO	Harris, J. W.	JSC	Anders, E.	NGL 14-001-167	2221
13	UNIV OF CHICAGO	Harris, J. W.	JSC	Smith, J. V.	NGL 14-001-171	2223
13	UNIV OF CINCINNATI	Blue, J. W.	IFRC	Selberg, B. P.	NSG 3091	3550
13	UNIV COLORADO-BOLDR	Bissell, E. E.	GSFC	Rottman, G. T.	NSG 5178	1887
13	UNIV COLORADO-BOLDR	Weiler, E. J.	HD-SC	Timothy, G.	NSG 7459	1902
13	UNIV COLORADO-BOLDR	Strickland, A. T.	HD-SL	Levine, J.	NSG 7344	1900
13	UNIV COLORADO-BOLDR	Birmingham, T. J.	HD-ST	Dulk, G. A.	NAGW 91	1863
13	UNIV COLORADO-BOLDR	Chipman, E.	HD-ST	Linsky, J. L.	NGL 06-003-057	1880
13	UNIV COLORADO-BOLDR	Bohlin, J. D.	HD-ST	Chipman, E.	NSG 7165	1895
13	UNIV COLORADO-BOLDR	Chipman, E.	HD-ST	Dulk, G. A.	NSG 7287	1897
13	UNIV COLORADO-BOLDR	Chipman, E.	HD-ST	Thomas, R. N.	NSG 7291	1898
13	UNIV COLORADO-BOLDR	Chipman, E.	HD-ST	Smith, D. F.	NSG 7507	1904
13	UNIV COLORADO-BOLDR	Chipman, E.	HD-ST	Gebbie, K. B.	NSG 7511	1905
13	UNIV DC-MT VERNON SQ	Mentall, J. F.	GSFC	Morgan, H. D.	NSG 5192	2023
13	UNIV OF DENVER	Goldberg, R.	GSFC	Barcus, J.	NAS 5-25862	1917
13	UNIV OF FLORIDA	Hohl, F.	LARC	Schneider, R. T.	NSG 1586	2068
13	UNIV OF FLORIDA	Thom, K.	HD-RR	Schneider, R. T.	NGL 10-005-089	2062
13	UNIV OF HAWAII-MANOA	DeLoach, A. C.	MSFC	Heasley, J. N.	NAS 8-33219	2162
13	UNIV OF HAWAII-MANOA	Boyce, J. M.	HD-SL	Morrison, D.	NSG 7633	2185
13	UNIV OF HAWAII-MANOA	Chipman, E.	HD-ST	Jeffries, J. T.	NSG 7536	2182
13	UNIV ILLINOIS-URBANA	Spencer, N. W.	GSFC	Sechrist, C. F., Jr.	NSG 5213	2263
13	UNIV ILLINOIS-URBANA	Jalufka, N. W.	LARC	Miley, G. H.	NSG 1547	2258
13	UNIV ILLINOIS-URBANA	Hohl, F.	LARC	Verdeyen, J. T.	NSG 1609	2259
13	UNIV ILLINOIS-URBANA	Cochran, T. H.	IFRC	Strehlow, R. A.	NSG 3293	2261
13	UNIV OF IOWA	Stallcop, J. R.	ARC	Stwalley, W. C.	NSG 2327	2373
13	UNIV OF IOWA	Gemmell, J. D.	GSFC	Frank, L. A.	NAS 5-11064	2353
13	UNIV OF IOWA	Davis, M. A.	GSFC	Gurnett, D. A.	NAS 5-20093	2356
13	UNIV OF IOWA	Wales, B.	GSFC	Frank, L. A.	NAS 5-20094	2357
13	UNIV OF IOWA	Fellerman, K. D.	GSFC	Frank, L. A.	NAS 5-24293	2358
13	UNIV OF IOWA	Fellerman, K. D.	GSFC	Shawhan, S. D.	NAS 5-24294	2359
13	UNIV OF IOWA	Heppner, J. P.	GSFC	Gurnett, D. A.	NAS 5-24336	2360
13	UNIV OF IOWA	Gemmell, J. D.	GSFC	Frank, L. A.	NAS 5-25530	2361
13	UNIV OF IOWA	Guynes, B. V.	MSFC	Shawhan, S.	NAS 8-33770	2368
13	UNIV OF IOWA	Blue, J. W.	HD-RT	Stwalley, W. C.	NSG 7471	2377
13	UNIV OF IOWA	Hedin, A. F.	HD-ST	VanAllen, J. A.	NGL 16-001-002	2369
13	UNIV OF IOWA	Hedin, A. F.	HD-ST	Gurnett, D. A.	NGL 16-001-043	2370
13	UNIV OF KANSAS	Purvis, C. K.	LERC	Armstrong, T. P.	NSG 3290	2412
13	UNIV MARYLAND-COL PK	Corrigan, J. P.	GSFC	Gloeckler, G.	NAS 5-11063	2535
13	UNIV MARYLAND-COL PK	Corrigan, J. P.	GSFC	Gloeckler, G.	NAS 5-20062	2536
13	UNIV MARYLAND-COL PK	Conrath, B. J.	GSFC	Ponnamperuma, C.	NAS 5-23237	2537
13	UNIV MARYLAND-COL PK	Hoffman, R. A.	GSFC	Coplan, M. A.	NGR 21-002-291	2567
13	UNIV MARYLAND-COL PK	Teegarden, B.	GSFC	Gloeckler, G.	NGR 21-002-316	2568
13	UNIV MARYLAND-COL PK	McDonald, F.	GSFC	McDonald, F.	NGT 21-002-803	2576
13	UNIV MARYLAND-COL PK	Bissell, E. E.	GSFC	Moore, J. H.	NSG 5177	2586
13	UNIV MARYLAND-COL PK	Heaps, W. S.	GSFC	McIlrath, T. J.	NSG 5313	2591
13	UNIV MARYLAND-COL PK	Simoneau, R. J.	LERC	Sengers, J. V.	NGR 21-002-344	2570
13	UNIV MARYLAND-COL PK	Urban, E. W.	MSFC	Geisler, J. F.	NAS 8-33557	2549
13	UNIV MARYLAND-COL PK	Toth, R. A.	HD-EB	Ginter, M. L.	NSG 7340	2604
13	UNIV MARYLAND-COL PK	Lundholm, J. G., Jr.	HD-RS	Spain, I. L.	NSG 7496	2609
13	UNIV MARYLAND-COL PK	Whiting, E. E.	HD-RT	Weber, J.	NSG 7196	2601
13	UNIV MARYLAND-COL PK	Birmingham, T. J.	HD-ST	Papadopoulos, K.	NAGW 81	2534

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13	UNIV MARYLAND-COL PK	Chipman, E	HD-ST	Kundu, M. R	NGR 21-002-199	2564
13	UNIV MARYLAND-COL PK	Bohlin, J. D.	HD-ST	Spicer, D. S.	NSG 7427	2606
13	UNIV OF MASS-AMHERST	Harris, J. W.	JSC	Haggerty, S. E.	NGL 22-010-089	2830
13	UNIV MICH-ANN ARBOR	Fellerman, K. D.	GSFC	Carignan, G. R.	NAS 5-24295	2874
13	UNIV MICH-ANN ARBOR	Fellerman, K. D.	GSFC	Hays, P. B.	NAS 5-24296	2875
13	UNIV MICH-ANN ARBOR	Hoffman, R. A.	GSFC	Nagy, A. F.	NAS 5-25038	2879
13	UNIV MICH-ANN ARBOR	Haykin, D.	GSFC	Carignan, G. R.	NAS 5-25158	2882
13	UNIV MICH-ANN ARBOR	Krehbiel, J. P.	GSFC	Carignan, G. R.	NAS 5-25409	2883
13	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-25916	2885
13	UNIV MICH-ANN ARBOR	Bissell, E. F.	GSFC	Sharp, W. E.	NGR 23-005-360	2902
13	UNIV MICH-ANN ARBOR	Hedin, A. E.	HD-ST	Samir, U.	NGR 23-005-320	2901
13	U MINN-MNPLS-ST PAUL	Brooks, W. F.	ARC	Scriven, L. F.	NAG 2-63	2934
13	U MINN-MNPLS-ST PAUL	Sugiura, M.	GSFC	Cahill, L. J., Jr	NAS 5-25389	2938
13	U MINN-MNPLS-ST PAUL	Guidotti, J.	GSFC	Winckler, J. R.	NSG 5088	2949
13	U MINN-MNPLS-ST PAUL	Guidotti, J.	GSFC	Kellogg, P. J.	NSG 5373	2950
13	U MINN-MNPLS-ST PAUL	Harris, J. W.	JSC	Pepin, R. O.	NGL 24-005-225	2943
13	U MINN-MNPLS-ST PAUL	Kerslake, W. R.	LERC	Wehner, G. K.	NSG 3041	2948
13	U MINN-MNPLS-ST PAUL	Lundholm, J. G., Jr	HD-RS	Scriven, L. F.	NSG 7296	2957
13	UNIV NEW HAMP-DURHAM	Birmingham, T. J.	GSFC	Fisk, L. A.	NAGW 76	3048
13	UNIV NEW HAMP-DURHAM	Trainor, J. H.	GSFC	Webber, W. R.	NAS 5-24354	3051
13	UNIV NEW HAMP-DURHAM	VonRosenvinge, T. T.	GSFC	Fisk, L. A.	NAS 5-25642	3053
13	UNIV NEW HAMP-DURHAM	Chipman, E.	HD-ST	Fisk, L. A.	NSG 7411	3060
13	UNIV OF NOTRE DAME	Scott, J. N.	LERC	Atassi, H.	NSG 3195	2328
13	UNIV OREGON-EUGENE	Brooks, W.	ARC	Donnelly, R.	NAG 2-7	3634
13	UNIV OREGON-EUGENE	Harris, J. W.	JSC	Weill, D. F.	NGL 38-003-022	3636
13	UNIV OF PACIFIC	Lee, G.	ARC	Perry, R. L.	NCA 2-588001	1764
13	UNIV OF PENNSYLVANIA	Hansen, C. F.	ARC	Rabin, S.	NAS 2-10070	3745
13	UNIV OF PITTSBURGH	Cooper, D. M.	ARC	Jordan, K. D.	NSG 2407	3766
13	UNIV OF PITTSBURGH	Kostuk, T.	GSFC	Falk, J.	NAS 5-25013	3757
13	UNIV OF ROCHESTER	Stallcop, J. R.	ARC	George, T. F.	NSG 2198	3358
13	UNIV OF ROCHESTER	Bohlin, J. D.	HD-ST	Thomas, J. H.	NSG 7562	3361
13	UNIV SAN FRANCISCO	Thirolf, R. G.	JSC	Benton, F. V.	NAS 9-15337	1769
13	UNIV SAN FRANCISCO	Parnell, T. A.	MSFC	Benton, F. V.	NAS 8-26758	1767
13	UNIV OF SANTA CLARA	Whitten, R. C.	ARC	McCormick, P. T.	NCA 2-685906	1780
13	UNIV OF SOUTHERN CAL.	Bissell, E. F.	GSFC	Judge, D. L.	NSG 5108	1803
13	UNIV OF SOUTHERN CAL.	Schmerling, E. R.	HD-ST	Intriligator, D. S.	NGR 05-018-181	1797
13	UNIV OF SOUTHERN CAL.	Cauffman, D. P.	HD-ST	Intriligator, D. S.	NGR 05-018-185	1798
13	UNIV SO MISSISSIPPI	Jones, J. J.	LARC	Rayborn, G. H.	NAG 1-49	2981
13	UNIV TENNESSEE-KNOXV	Maguire, W. C.	GSFC	Fox, K.	NAS 5-25428	3827
13	UNIV TENNESSEE-KNOXV	Fichtl, G. H.	MSFC	Antar, B.	NAS 8-33447	3833
13	UNIV TENNESSEE-KNOXV	Parker, J. R.	MSFC	Hung, J. C.	NAS 8-33849	3835
13	UNIV TEXAS-AUSTIN	Rice, E. J.	LERC	Blackstock, D. T.	NSG 3198	4019
13	UNIV TEXAS-DALLAS	Hoffman, R. A.	GSFC	Heelis, R. A.	NAS 5-24297	4042
13	UNIV TEXAS-DALLAS	Hoffman, R. A.	GSFC	Hanson, W. B.	NAS 5-24298	4043
13	UNIV TEXAS-DALLAS	Fellerman, K. D.	GSFC	Winningham, J. D.	NAS 5-24299	4044
13	UNIV TEXAS-DALLAS	Caporale, A. J.	GSFC	Hanson, W. B.	NAS 5-25310	4045
13	UNIV TEXAS-DALLAS	Guidotti, J.	GSFC	Winningham, J. D.	NGR 44-004-124	4058
13	UNIV TEXAS-DALLAS	Chappell, C. R.	MSFC	Hanson, W. B.	NAS 8-32831	4052
13	UNIV TEXAS-SANTONIO	Spencer, N. W.	GSFC	Burch, J. L.	NSG 5214	4078
13	UNIV OF VIRGINIA	Beatty, M. E.	LARC	Batchman, T. F.	NSG 1567	4228
13	UNIV OF WASHINGTON	Chai, A.	LERC	Hertzberg, A.	NAG 3-16	4303
13	UNIV OF WASHINGTON	Randolph, L.	HD-RT	Hertzberg, A.	NGL 48-002-044	4327
13	UNIV WISC-MADISON	Hedin, A. E.	HD-ST	Scherb, F.	NGR 50-002-162	4395
13	UTAH STATE UNIV	Eiband, A. M.	GSFC	Banks, P. M.	NAS 5-24455	4098
13	UTAH STATE UNIV	Spencer, N. W.	GSFC	St Maurice, J. P.	NSG 5215	4104
13	UTAH STATE UNIV	Spencer, N. W.	GSFC	Foster, J. C.	NSG 5216	4105
13	UTAH STATE UNIV	Chappell, C. R.	MSFC	Banks, P. M.	NAS 8-34003	4102
13	UTAH STATE UNIV	Birmingham, T. J.	HD-ST	Schunk, R. W.	NAGW 77	4097

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13	VANDERBILT UNIVERSITY	Jalufka, N. W.	LARC	Lee, J. H.	NCC 1-8	3849
13	VIRGINIA POLY INST	Cantrell, J. H.	LARC	Claus, R. O.	NAG 1-68	4743
13	VIRGINIA STATE UNIV	Singh, J. J.	LARC	Stronach, C. E.	NSG 1342	4299
13	VIRGINIA STATE UNIV	Wilson, J. W.	LARC	Stronach, C. E.	NSG 1646	4300
13	WASHINGTON ST UNIV	Poppa, H. R.	ARC	Dickinson, J. T.	NCA 2-840002	4353
13	WASHINGTON ST UNIV	Poppa, H. R.	ARC	Dickinson, J. T.	NCA 2-840901	4354
13	WASHINGTON ST UNIV	Poppa, H. R.	ARC	Dickinson, J. T.	NCC 2-69	4355
13	WASHINGTON UNIVERSITY	Harris, J. W.	JSC	Walker, R. M.	NGL 26-008-065	3009
13	WASHINGTON UNIVERSITY	Heyman, J. S.	LARC	Miller, J. G.	NSG 1601	3011
13	WEBER STATE COL	Chipman, E.	HD-ST	Tripp, D. A.	NAGW 19	4111
13	WILLIAMS COLLEGE	Reinhardt, V. S.	GSFC	Crampton, S. B.	NSG 5218	2838
13	WRIGHT STATE UNIV	Dicarlo, J. A.	LFRC	Bambakidis, G.	NSG 3240	3588
13	YALE UNIVERSITY	Hoppe, J. C.	LARC	Chang, R. K.	NAG 1-37	1937
13	YORK COLLEGE-NY	Quaide, W. L.	HD-SL	Spergel, M. S.	NSG 7454	3362
19	ARIZONA STATE UNIV	Pollack, J. B.	ARC	Greeley, R.	NSG 2284	1102
19	ATHENS STATE COLLEGE	Reaves, F. A.	MSFC	Workman, G. L.	NAS 8-32920	1012
19	BOWIE STATE COLLEGE	Mundy, J. R.	GSFC	Butler, O. B.	NCA 5-97	2471
19	BROOKLYN COLLEGE	Byvik, C. I.	LARC	Tomkiewicz, M.	NAG 1-44	3142
19	CALIF INST OF TECH	Harris, J. W.	JSC	Ahrens, T. J.	NSG 9019	1274
19	CASE WESTERN RESERVE	Weigand, A. J.	LFRC	Gibbons, D. F.	NAS 3-22259	3423
19	CASE WESTERN RESERVE	Smetana, J.	LFRC	Collins, R. F.	NAS 3-22342	3424
19	CASE WESTERN RESERVE	Mirtich, M. J.	LFRC	Smith, S.	NSG 3131	3439
19	CASE WESTERN RESERVE	Mirtich, M. J.	LFRC	Wallace, J. F.	NSG 3279	3457
19	CHRISTOPHER NEWPORT COL	Wilson, J. W.	LARC	Chang, C. K.	NSG 1614	4116
19	COLLEGE OF WM & MARY	Kepley, B. M.	LARC	Aceto, H., Jr.	NAS 1-9990	4119
19	COLLEGE OF WM & MARY	Cauffman, D. P.	HD-ST	Montgomery, D. C.	NSG 7416	4135
19	COLORADO STATE UNIV	Rango, A.	GSFC	Boyne, H. S.	NAG 5-88	1817
19	COLORADO STATE UNIV	Mirtich, M. J.	LFRC	Robinson, R. S.	NAG 3-43	1815
19	COLUMBIA UNIVERSITY	Smith, D. F.	GSFC	Johnson, T. I.	NGR 33-008-146	3181
19	COLUMBIA UNIVERSITY	Seltzer, S. M.	MSFC	Likins, P. A.	NAS 8-32212	3173
19	CORNELL UNIVERSITY	Gray, J. W.	WFC	Kelley, M. C.	NSG 6020	3229
19	DRAKE UNIVERSITY	Fowles, W. W.	MSFC	Kopicky, K. J.	NAS 8-33728	2329
19	HAMPTON INSTITUTE	Frickson, W. D.	LARC	Darden, G. C.	NAS 1-14832	4143
19	HARVARD UNIVERSITY	Heninger, L. W.	HD-SP	Field, G. B.	NSG 7176	2675
19	HOUSTON BAPTIST UNIV	McCoy, J.	JSC	Warren, D. G.	NSG 9076	3866
19	KENT STATE UNIV-KENT	Wintucky, F. G.	LFRC	Gelerinter, F.	NAS 3-21945	3478
19	MASS INST OF TECH	Stephanides, C. C.	GSFC	Shapiro, I. I.	NAS 5-25833	2727
19	MASS INST OF TECH	Pepper, S. V.	LFRC	Johnson, K. H.	NCC 3-1	2742
19	MICHIGAN STATE UNIV	Nakanishi, S.	LFRC	Asmussen, J.	NSG 3299	2850
19	MICHIGAN TECH UNIV	Moore, W. W.	MSFC	Hellawell, A.	NAS 8-33727	2852
19	MIDDLEBURY COLLEGE	Hedin, A. F.	HD-ST	Wolfson, L. T.	NAGW 54	4113
19	MORGAN STATE UNIV	Pohly, J. G.	HD-LU	Proctor, N. K.	NGT 21-075-006	2512
19	NEW MEX ST U-LAS CR	Mayr, H. G.	HD-ST	Theimer, O. H.	NSG 7622	3132
19	NO CAR A&T STATE U	Hoell, J. M.	LARC	Yu, C.	NAG 1-82	3369
19	NORTHWESTERN UNIV	Moore, W. W.	MSFC	Davis, S. H.	NAS 8-33881	2199
19	OLD DOMINION UNIV	Fowler, W.	GSFC	Becher, J.	NSG 5053	4206
19	OLD DOMINION UNIV	Wilson, J. W.	LARC	Khandelwal, G. S.	NCC 1-42	4172
19	PENN STATE U-UNIV PK	Toon, O. B.	ARC	Antes, R. A.	NGT 39-009-801	3719
19	PENN STATE U-UNIV PK	Early, L. J.	WFC	Mitchell, J. D.	NAG 6-7	3696
19	PENN STATE U-UNIV PK	Early, L. J.	WFC	Hale, L. C.	NSG 6004	3739
19	PRAIRIE VIEW A&M U	White, W. L.	ARC	Jackson, B. N.	NCA 2-598001	3869
19	RENSSELAER POLY-NY	Davidson, M. C.	MSFC	Wiedemeier, H.	NAS 8-32639	3281
19	RICE UNIVERSITY	McIntyre, B.	JSC	Berstein, W.	NAS 9-16166	3885
19	RICE UNIVERSITY	Kosmahl, H. G.	LFRC	Freeman, J. W.	NAG 3-29	3871
19	RICE UNIVERSITY	Early, L. J.	WFC	Anderson, H. R.	NAG 6-5	3872
19	RICE UNIVERSITY	Hedin, A. E.	HD-ST	Bernstein, W.	NAGW 69	3873
19	STANFORD UNIVERSITY	McKenzie, R. L.	ARC	Baganoff, D.	NAG 2-36	1363
19	STANFORD UNIVERSITY	McKenzie, R. L.	ARC	Harris, S. E.	NAG 2-44	1366

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19	STANFORD UNIVERSITY	Rubesin, M. W.	ARC	Reynolds, W. C.	NCC 2-15	1412
19	STANFORD UNIVERSITY	Chapman, G. T.	ARC	Karamcheti, K.	NCC 2-66	1427
19	STANFORD UNIVERSITY	Ostrow, H.	GSFC	Macovski, A.	NAS 5-25043	1381
19	STANFORD UNIVERSITY	Reeves, F. A.	MSFC	Tiller, W. A.	NAS 8-33110	1390
19	STANFORD UNIVERSITY	Hedin, A. E.	HD-ST	Crawford, F. W.	NGL 05-020-176	1440
19	STANFORD UNIVERSITY	Kaiser, M. L.	HD-ST	DaRosa, A. V.	NGR 05-020-001	1445
19	TEXAS A&M UNIVERSITY	Stonesifer, G. R.	GSFC	Harlan, J. C.	NAS 5-24383	3911
19	TUSKEGEE INSTITUTE	Kerslake, W. R.	LERC	Ray, P. K.	NAG 3-76	1027
19	UNIV ALA-HUNTSVILLE	Snoddy, W. C.	MSFC	Wu, S. T.	NAS 8-33132	1050
19	UNIV ALA-HUNTSVILLE	Morgan, S. H.	MSFC	Wu, S. T.	NAS 8-33443	1054
19	UNIV ALA-HUNTSVILLE	Carey, T.	MSFC	Carter, E.	NAS 8-34187	1067
19	UNIV ALA-HUNTSVILLE	Tandberghanssen, E.	MSFC	Wu, S. T.	NGT 01-002-081	1068
19	UNIV ALASKA-FAIRBNKS	Early, L. J.	WFC	Wescott, E. M.	NAG 6-1	1076
19	UNIV ALASKA-FAIRBNKS	Gray, J. W.	WFC	Hallinan, T. J.	NSG 6028	1086
19	UNIV ALASKA-FAIRBNKS	Hedin, A. E.	HD-ST	Akasofu, S. I.	NSG 7447	1087
19	UNIV ALASKA-FAIRBNKS	Hedin, A. E.	HD-ST	Swift, O. W.	NSG 7625	1088
19	UNIV CALIF-BERKELEY	Bauer, E. H.	ARC	Colwell, R. N.	NCC 2-54	1530
19	UNIV CALIF-BERKELEY	King, J. H.	HD-ST	Anderson, K. A.	NGL 05-003-017	1534
19	UNIV CALIF-BERKELEY	Schmerling, E. R.	HD-ST	Hudson, M. R.	NSG 7401	1561
19	UNIV CALIF-L ANGELES	Hedin, A. E.	HD-ST	Holzer, R. E.	NAGW 74	1591
19	UNIV CALIF-L ANGELES	Glaser, H.	HD-ST	Kennel, C. F.	NGL 05-007-190	1614
19	UNIV CALIF-L ANGELES	Schmerling, E. R.	HD-ST	Stenzel, R. L.	NSG 7616	1655
19	UNIV CALIF-SAN DIEGO	Rubesin, M. W.	ARC	Rosenblatt, M.	NSG 2376	1699
19	UNIV CALIF-SAN DIEGO	Holweck, E. C.	GSFC	Goodkind, J. M.	NSG 5331	1705
19	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HD-SL	Suess, H. E.	NGL 05-009-005	1689
19	UNIV CALIF-SAN DIEGO	Schmerling, E. R.	HD-ST	Alfven, H.	NSG 7623	1714
19	UNIV CALIF-S BARBARA	Harris, J. W.	JSC	Fuller, M. D.	NSG 9020	1757
19	UNIV COLORADO-BOLDR	Hall, C. F.	ARC	Stewart, I. A.	NAS 2-9477	1864
19	UNIV COLORADO-BOLDR	Guidotti, J.	GSFC	Barth, C. A.	NSG 5103	1885
19	UNIV DC-VAN NESS	Chappelle, E. W.	GSFC	Wattlington, R. A.	NSG 5290	2027
19	UNIV OF HAWAII-MANOA	Finley, C. J.	HD-ER	Berg, E.	NSG 7179	2175
19	UNIV HOUSTON-HOUSTON	Schneider, H. J.	JSC	Middleditch, B. S.	NGT 44-005-800	3966
19	UNIV HOUSTON-HOUSTON	Schmerling, E. R.	HD-ST	Sheldon, W. R.	NSG 7609	3974
19	UNIV ILLINOIS-URBANA	Gray, J. W.	WFC	Bowhill, S. A.	NGR 14-005-181	2256
19	UNIV OF IOWA	Hedin, A. E.	HD-ST	Joyce, G.	NSG 7632	2378
19	UNIV OF KANSAS	Hedin, A. E.	HD-ST	Beard, D. B.	NAGW 71	2392
19	UNIV MARYLAND-COL PK	Hedin, A. E.	HD-ST	Wu, C. S.	NGL 21-002-005	2559
19	UNIV MICH-ANN ARBOR	Ruff, R. C.	MSFC	Carignan, G. R.	NAS 8-31987	2891
19	UNIV MICH-ANN ARBOR	Chappell, C. R.	MSFC	Carignan, G. R.	NAS 8-32332	2892
19	UNIV MICH-ANN ARBOR	Jones, C.	MSFC	Torr, M. R.	NAS 8-32569	2893
19	U MINN-MNPLS-ST PAUL	Early, L. J.	WFC	Nier, A. O.	NSG 6009	2952
19	U MINN-MNPLS-ST PAUL	Early, L. J.	WFC	Cahill, L. J., Jr.	NSG 6021	2953
19	U MINN-MNPLS-ST PAUL	Cauffman, D. P.	HD-ST	Cahill, L. J., Jr.	NSG 7237	2956
19	UNIV NEVADA-DRI	Smith, R. E.	MSFC	Telford, J. W.	NAS 8-31441	3029
19	UNIV NEW HAMP-DURHAM	Wende, C. D.	GSFC	Arnoldy, R. L.	NAS 5-24328	3050
19	UNIV NEW HAMP-DURHAM	Early, L. J.	WFC	Arnoldy, R. L.	NSG 6022	3059
19	UNIV OF PENNSYLVANIA	Singer, J.	LERC	Worrell, W. L.	NSG 3300	3751
19	UNIV OF PITTSBURGH	Early, L. J.	WFC	Zipf, E. C.	NAG 6-2	3755
19	UNIV OF PITTSBURGH	Gray, J. W.	WFC	Zipf, E. C.	NSG 6011	3771
19	UNIV STHN COLORADO	Lofgren, G.	JSC	Smith, R. K.	NSG 9051	1926
19	UNIV TEXAS-AUSTIN	Stephanides, C. C.	GSFC	Tapley, B. D.	NAS 5-25991	3991
19	UNIV TEXAS-AUSTIN	White, W.	GSFC	Shelus, P. J.	NSG 7162	4028
19	UNIV TEXAS-AUSTIN	Finley, C. J.	HD-ER	Dorman, J. H.	NSG 7159	4027
19	UNIV TEXAS-AUSTIN	Shirey, W. H.	HD-SM	Silverberg, E. C.	NASW 2974	4004
19	UNIV TEXAS-DALLAS	Chappell, C. R.	MSFC	Hanson, W. B.	NAS 8-31775	4050
19	UNIV TEXAS-DALLAS	Hedin, A. E.	HD-ST	Heikkila, W. J.	NAGW 53	4038
19	UTAH STATE UNIV	Early, L. J.	WFC	Williamson, P. R.	NSG 6027	4106
19	VIRGINIA POLY INST	Byvik, C. E.	LARC	Finklea, H. O.	NAG 1-89	4246

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19	VIRGINIA POLY INST	Parker, L. C.	WFC	Powell, N. L.	NSG 6029	4295
19	VIRGINIA POLY INST	Scott, J. H.	WFC	Powell, N. L.	NSG 6030	4296
19	VIRGINIA POLY INST	Parker, L. C.	WFC	Powell, N. L.	NSG 6031	4297
21	ALABAMA A&M UNIV	Smith, O. E.	MSFC	Temple, E. C.	NSG 8065	1008
21	ARIZONA STATE UNIV	Lee, G.	MSFC	Woodfin, M. A.	NAS 8-32230	1096
21	BOWIE STATE COLLEGE	Maury, J. L.	GSFC	Srivastava, S.	NGR 21-027-004	2473
21	CLEMSON UNIV-CLEMSON	Lallman, F. J.	LARC	Fennell, R. E.	NAG 1-81	3792
21	COLLEGE OF WM & MARY	Harris, J. L.	LARC	Donegan, M. K.	NSG 1435	4130
21	COLORADO STATE UNIV	Lomax, H.	ARC	Thomas, J. W.	NCA 2-165001	1827
21	COLORADO STATE UNIV	Murphy, J. D.	ARC	Prenter, P. M.	NCA 2-165901	1828
21	COLORADO STATE UNIV	Toll, D.	GSFC	Maxwell, E.	NAS 5-26127	1825
21	COOPER UNION COLLEGE	Evans, J. S.	LARC	Chinitz, W.	NAG 1-18	3194
21	DUKE UNIVERSITY	Hallum, C. R.	JSC	Hartley, H. O.	NAS 9-16020	3364
21	DUKE UNIVERSITY	Ford, W. F.	LERC	Smith, D. A.	NSG 3160	3367
21	HAMPTON INSTITUTE	Haigler, G. W.	LARC	Shan, S. N.	NCC 1-7	4147
21	HARVARD UNIVERSITY	Quann, J.	GSFC	Teicholz, E.	NAS 5-25989	2647
21	HOWARD UNIVERSITY	Laughlin, C. R.	GSFC	Gill, T. L.	NSG 5295	2016
21	IOWA STATE UNIV	Shoosmith, J. N.	LARC	Funberg, R. B.	NSG 1538	2346
21	LEHIGH UNIVERSITY	Fichter, W. B.	LARC	Erdogan, F.	NGR 39-007-011	3677
21	MISSISSIPPI STATE U	Smith, R. E., Jr.	LARC	Thompson, J. F.	NSG 1577	2978
21	MOREHOUSE COLLEGE	Campbell, W.	MSFC	Bozeman, R. E.	NAG 8-3	2143
21	NEW MEX ST U-LAS CR	Chapman, G. T.	ARC	McLeod, R. J.	NAG 2-23	3123
21	NEW YORK UNIVERSITY	Warming, R. F.	ARC	Herten, A.	NCA 2-525001	3252
21	NEW YORK UNIVERSITY	South, J. C., Jr.	LARC	Garabedian, P. R.	NSG 1579	3259
21	NEW YORK UNIVERSITY	Knight, J. C.	LARC	Schwartz, J. T.	NSG 1610	3260
21	NO CAR A&T STATE U	Ramapriyan, H. K.	GSFC	Alexander, W. E.	NSG 5406	3375
21	OLD DOMINION UNIV	Harris, J. E.	LARC	Lakin, W. D.	NAG 1-25	4156
21	OREGON STATE UNIV	Lomax, H.	ARC	Jespersen, D. C.	NCA 2-586001	3627
21	PURDUE UNIVERSITY	Grenchik, T. J.	GSFC	Williams, T. J.	NAS 5-26196	2297
21	RENSSELAER POLY-NY	Pennington, J. E.	LARC	Shen, C. N.	NAG 1-61	3276
21	SAN JOSE STATE UNIV	Duval, R. W.	ARC	Wang, J. C.	NCC 2-83	1351
21	STANFORD UNIVERSITY	Warming, R. E.	ARC	Schreiber, R. S.	NCA 2-745002	1397
21	UNIV CALIF-L ANGELES	Ballhaus, W. F.	ARC	Osher, S.	NCA 2-390002	1608
21	UNIV DC-MT VERNON SQ	Lefferts, E.	GSFC	Bakshi, J. S.	NSG 5122	2022
21	UNIV OF FLORIDA	Haigler, G. W.	LARC	Edwards, B. H.	NAG 1-39	2047
21	UNIV OF GEORGIA	Toll, D.	GSFC	Jensen, J. R.	NAS 5-26129	2146
21	UNIV ILLINOIS-URBANA	Foudnat, E. C.	LARC	Campbell, R. H.	NSG 1471	2257
21	UNIV MARYLAND-COL PK	Gevarter, W. B.	HD-RE	Minker, J.	NGR 21-002-270	2566
21	UNIV OF MIAMI	Tucker, J. H.	LARC	Tapia, M. A.	NSG 1436	2087
21	UNIV NEW HAMP-DURHAM	MacElroy, R. D.	ARC	Moore, B.	NCA 2-512901	3054
21	UNIV OF NEW ORLEANS	Lambiotte, J. J.	LARC	Ioup, G. E.	NSG 1648	2466
21	UNIV OF SO FLORIDA	Huck, F. O.	LARC	Tsokos, C. P.	NAG 1-9	2091
21	UNIV OF SOUTHERN CAL	Jaffee, R. L.	ARC	Segal, G. A.	NSG 2351	1801
21	UNIV TENNESSEE-KNOXV	Smith, R. E.	LARC	Baker, A. J.	NAG 1-32	3820
21	UNIV TEXAS-AUSTIN	Fuchs, A. J.	GSFC	Tapley, B. D.	NSG 5154	4020
21	UNIV TEXAS-AUSTIN	Krshen, K.	JSC	Griffin, C. R.	NAS 9-16171	4002
21	UNIV OF VIRGINIA	Bowles, R. L.	LARC	Brown, R. L., Jr.	NSG 1335	4226
21	WALLA WALLA COLLEGE	Schmidt, R.	GSFC	Heisler, R.	NAS 5-25994	4351
21	WESTERN ILLINOIS U	Loendorf, D. D.	LARC	McBride, W. E.	NAG 1-42	2271
21	WICHITA STATE UNIV	Smith, J. M.	LERC	Greywall, M. S.	NSG 3186	2423
21	XAVIER UNIV-LA	Wood, G. M.	LARC	Ioup, J.	NAG 1-16	2468
22	ARIZONA STATE UNIV	Milner, E. J.	LERC	Ogrady, E. P.	NAG 3-112	1091
22	CAL STATE U-FULLERTN	Tobias, L.	ARC	Dear, R. G.	NCA 2-253801	1288
22	COLLEGE OF WM & MARY	Harris, J. L.	LARC	Feyock, S.	NAG 1-62	4118
22	COLLEGE OF WM & MARY	Foudnat, E. C.	LARC	Feyock, S.	NSG 1626	4133
22	MASS INST OF TECH	Shoosmith, J. N.	LARC	Moses, J.	NSG 1323	2769
22	NO CAROLINA STATE U	Park, S. K.	LARC	Roulier, J. A.	NSG 1549	3393
22	OLD DOMINION UNIV	Foudnat, E. C.	LARC	Knapper, R. J.	NAG 1-47	4157

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22	PENN STATE U-UNIV PK	Dottavio, C L	GSFC	Turner, B.	NAS 5-26166	3702
22	SAN JOSE STATE UNIV	Chyu, W J.	ARC	Mitchem, J.	NCA 2-675901	1331
22	SO UNIV-BATON ROUGE	Smith, J. A.	HD-NS	Roquemore, L	NASW 3344	2459
22	STANFORD UNIVERSITY	Beam, R M	ARC	Oligier, J	NCA 2-745004	1398
22	ST UNIV SYSTM OF FLA	Harrison, J	HD-ET	Unavailable	NASW 3351	2041
22	TEXAS A&M UNIVERSITY	Broune, I. D	JSC	Sielken, R L	NAS 9-13894	3921
22	TEXAS A&M UNIVERSITY	Browne, I. D	JSC	Guseman, L F	NAS 9-14689	3922
22	TUSKEGEE INSTITUTE	Barker, L K	LARC	Bales, J W	NAG 1-31	1024
22	UNIV ALA-HUNTSVILLE	Jones, R E	MSFC	Shiva, S. G	NAS 8-33096	1049
22	UNIV CALIF-L ANGELES	Raby, J S	ARC	Karplus, W J	NAG 2-41	1585
22	UNIV DC-VAN NESS	Purves, L. R	GSFC	Finley, G T	NAG 5-91	2025
22	UNIV OF GEORGIA	Harrison, J. O	HD-ET	Hale, H	NASW 3247	2147
22	UNIV OF KENTUCKY	Harrison, J. O	HD-ET	Hackbarth, M	NASW 3367	2431
22	UNIV MARYLAND-COL PK	Desjardins, R L	GSFC	Rieger, C J	NAG 5-99	2527
22	UNIV MARYLAND-COL PK	Barker, L K	LARC	Minker, J	NAG 1-51	2519
22	UNIV MARYLAND-COL PK	Gevarter, W. B	HD-RT	Reiger, C J	NSG 7253	2602
22	UNIV OF PITTSBURGH	Bivins, R G	HD-ET	Thompson, J H	NASW 3403	3759
22	UNIV OF SANTA CLARA	Knauer, S C	ARC	Danielson, R L	NCA 2-685905	1779
22	UNIV OF SOUTHERN CAL	Pennington, J E	LARC	Heer, F	NCC 1-38	1794
22	UNIV TEXAS-AUSTIN	Schiess, J R	LARC	Cline, A K	NAG 1-79	3981
22	UNIV TEXAS-AUSTIN	Shipman, F S	LARC	Browne, J. C	NSG 1446	4013
22	UNIV TEXAS-AUSTIN	Will, R W	LARC	Browne, J. C	NSG 1479	4014
22	UNIV TEXAS-AUSTIN	Schiess, J R	LARC	Cline, A K	NSG 1544	4015
22	UNIV OF VIRGINIA	Will, R W	LARC	Berman, W J	NAS 1-14862	4214
31	ALCORN STATE UNIV	Grebowsky, J.	GSFC	Paul, M P	NGR 25-012-001	2959
31	ARIZONA STATE UNIV	Camp, D	MSFC	Logan, E. Jr	NAS 8-32357	1097
31	ARIZONA STATE UNIV	Boyce, J M	HD-SL	Greeley, R	NSG 7548	1108
31	AUGSBURG COLLEGE	Spencer, N W	GSFC	Engelbreton, M J.	NSG 5285	2929
31	BOSTON UNIVERSITY	Guynes, B V	MSFC	Mendillo, M	NAS 8-32844	2623
31	BROWN UNIVERSITY	Oscorff, H	GSFC	Hermance, J F	NAS 5-26138	3779
31	CALIF INST OF TECH	Pollack, J B	ARC	Yung, Y. L	NCC 2-61	1228
31	CALIF INST OF TECH	Nelsen, F D	GSFC	Ingersoll, A P	NAS 5-22965	1218
31	CALIF INST OF TECH	Hansen, J F	GSFC	Yung, Y L	NSG 5301	1255
31	CALIF INST OF TECH	Donley, J L	GSFC	Zirin, H	NSG 5314	1256
31	CALIF INST OF TECH	Donley, J L	GSFC	Zirin, H	NSG 5327	1257
31	CALIF INST OF TECH	McDougal, D S	LARC	Seinfeld, J H	NAG 1-71	1201
31	CALIF INST OF TECH	Murphy, R F	HD-SL	Ingersoll, A P	NAGW 58	1214
31	CALIF INST OF TECH	Murphy, R F	HD-SL	Yung, Y L	NSG 7376	1266
31	CAL STATE U-FULLERTN	Murphy, R E	HD-SL	Ryan, J A	NSG 7614	1291
31	CAL STATE U-NRTHRDGE	Donley, J L	GSFC	Martin, S F	NSG 5324	1302
31	CAL STATE U-NRTHRDGE	Donley, J L	GSFC	Chapman, G A	NSG 5330	1303
31	CAL STATE U-NRTHRDGE	Donley, J L	GSFC	Chapman, G A	NSG 5333	1304
31	CASE WESTERN RESERVE	Toth, R A	HD-EB	Nordstrom, R J	NAGW 31	3417
31	CITY COLLEGE OF N Y	Hansen, J E	GSFC	Spar, J	NGR 33-013-086	3150
31	CLEMSON UNIV-CLEMSON	Rodgers, F B	GSFC	Gentry, R C	NSG 5349	3798
31	CLEMSON UNIV-CLEMSON	Wexler, R	GSFC	Gentry, R C	NSG 5350	3799
31	COLLEGE OF WM & MARY	Sullivan, F M.	LARC	Schone, H	NCC 1-3	4125
31	COLLEGE OF WM & MARY	Sullivan, F M	LARC	Schone, H	NCC 1-16	4126
31	COLLEGE OF WM & MARY	Sullivan, F M	LARC	Schone, H	NCC 1-43	4128
31	COLORADO STATE UNIV	King, M D	GSFC	McKee, T B	NAG 5-58	1816
31	COLORADO STATE UNIV	Rodgers, F B	GSFC	Vonderhaar, T H	NSG 5258	1841
31	COLORADO STATE UNIV	Arking, A	GSFC	Reiter, E R	NSG 5340	42
31	COLORADO STATE UNIV	Heymsfield, G M	GSFC	Cotton, W R	NSG 5341	3
31	COLORADO STATE UNIV	Curran, R J	GSFC	Cox, S K	NSG 5357	1845
31	COLORADO STATE UNIV	MacDonald, R B	JSC	Smith, J A	NAS 9-16016	1826
31	COLORADO STATE UNIV	Harrison, I F	LARC	Vonderhaar, T H	NAS 1-15580	1820
31	COLORADO STATE UNIV	Lassiter, W S	LARC	Meroney, R N	NAS 1-15925	1821
31	COLORADO STATE UNIV	Hall, J B	LARC	Vonderhaar, T H	NAS 1-16465	1822

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
31	COLUMBIA UNIVERSITY	Oseroff, H.	GSFC	Labreque, J.	NAS 5-25891	3170
31	COLUMBIA UNIVERSITY	Thaddeus, P.	GSFC	Broecker, W. S.	NCC 5-16	3178
31	COLUMBIA UNIVERSITY	Leroy, B.	LERC	Stern, T. E.	NAS 5-25759	3169
31	COLUMBIA UNIVERSITY	West, G. S.	MSFC	Balachandran, N. K.	NAS 8-33378	3175
31	CORNELL UNIVERSITY	Pollack, J. B.	ARC	Burns, J. A.	NCA 2-175001	3205
31	CORNELL UNIVERSITY	Murphy, R. E.	HD-SL	Sagan, C. E.	NGL 33-010-082	3210
31	CORNELL UNIVERSITY	Murphy, R. E.	HD-SL	Gierasch, P. J.	NGL 33-010-186	3212
31	CORNELL UNIVERSITY	Quaide, W. L.	HD-SL	Burns, J. A.	NSG 7445	3234
31	CORNELL UNIVERSITY	Murphy, R. E.	HD-SL	Gierasch, P. J.	NSG 7612	3243
31	DARTMOUTH COLLEGE	Hansen, J. E.	GSFC	Self, S.	NSG 5145	3044
31	DREXEL UNIVERSITY	Farlow, N. H.	ARC	Friend, J. P.	NAG 2-10	3651
31	DREXEL UNIVERSITY	Ucellini, L. W.	GSFC	Kreitzberg, C.	NSG 5162	3666
31	DREXEL UNIVERSITY	McCormick, M. P.	LARC	Friend, J. P.	NAGW 84	3654
31	DREXEL UNIVERSITY	Reid, J. M., III	LARC	House, F. B.	NAS 1-14393	3655
31	DREXEL UNIVERSITY	Hall, J. B.	LARC	House, F. B.	NAS 1-16428	3656
31	DREXEL UNIVERSITY	Allario, F.	LARC	Abbas, M. M.	NCC 1-33	3460
31	DREXEL UNIVERSITY	Smith, G. L.	LARC	House, F. B.	NSG 1545	3662
31	DREXEL UNIVERSITY	Schaefer, D. A.	MSFC	Lord, A. E.	NAS 8-33372	3658
31	DREXEL UNIVERSITY	Holland, A. C.	WFC	Bandy, A. R.	NSG 6007	3667
31	DUKE UNIVERSITY	Toth, R. A.	HD-FB	Delucia, F. C.	NSG 7540	3368
31	EMMANUEL COLLEGE	Spencer, N. W.	GSFC	Basu, S.	NSG 5419	2635
31	FURMAN UNIVERSITY	Mayr, H. G.	GSFC	Porter, H. S.	NAG 5-97	3800
31	FAIRFIELD UNIVERSITY	Heath, D. F.	GSFC	McElaney, J. H.	NCC 5-6	1927
31	FAIRFIELD UNIVERSITY	Heath, D. F.	GSFC	McElaney, J. H.	NGR 07-010-002	1928
31	FLORIDA STATE UNIV	Halem, M.	GSFC	Krishnamurti, T. N.	NAG 5-6	2034
31	FLORIDA STATE UNIV	McMaster, L. R.	LARC	Craig, R. A.	NAS 1-14930	2035
31	FLORIDA STATE UNIV	Toth, R. A.	HD-FB	Hunt, R. H.	NSG 7473	2038
31	FLORIDA STATE UNIV	Murphy, R. E.	HD-SL	Hess, S. L.	NSG 7629	2039
31	GEORGE WASHINGTON U	Orr, H. D.	LARC	Liebowitz, H.	NCC 1-1	1971
31	GEORGE WASHINGTON U	Callis, L. B.	LARC	Liebowitz, H.	NCC 1-19	1973
31	GEORGE WASHINGTON U	Callis, L. B.	LARC	Liebowitz, H.	NCC 1-39	1978
31	GEORGE WASHINGTON U	Callis, L. B.	LARC	Rogerson, A. C.	NSG 1026	1984
31	GEORGE WASHINGTON U	Smith, G. L.	LARC	Liebowitz, H.	NSG 1555	1987
31	GEORGIA INST OF TECH	Young, R. F.	ARC	Alyea, F. N.	NCC 2-9	2125
31	GEORGIA INST OF TECH	Ragent, B.	ARC	Grams, G. W.	NSG 2306	2131
31	GEORGIA INST OF TECH	Page, W. A.	ARC	Grams, G. W.	NSG 2363	2134
31	GEORGIA INST OF TECH	Levine, D. M.	GSFC	Saxena, S. K.	NAS 5-24148	2115
31	GEORGIA INST OF TECH	Reber, C. A.	GSFC	Cunnold, D. M.	NAS 5-26304	2118
31	GEORGIA INST OF TECH	Allario, F.	LARC	Davis, D. D.	NAG 1-50	2101
31	GEORGIA INST OF TECH	Reichle, H. G.	LARC	Chameides, W. L.	NAG 1-85	2102
31	GEORGIA INST OF TECH	Lawrence, G. F.	LARC	Zimmer, R. P.	NAS 1-14351	2108
31	GEORGIA INST OF TECH	McMaster, L. R.	LARC	Grams, G. W.	NAS 1-16356	2112
31	GEORGIA INST OF TECH	McMaster, L. R.	LARC	Cunnold, D. M.	NAS 1-16357	2113
31	GEORGIA INST OF TECH	McMaster, L. R.	LARC	Grams, G. W.	NSG 1493	2128
31	GEORGIA INST OF TECH	Master, L. R.	LARC	Cunnold, D. M.	NSG 1643	2130
31	GEORGIA INST OF TECH	Smith, O. F.	MSFC	Justus, C. G.	NAS 8-32897	2119
31	GEORGIA INST OF TECH	Murphy, R. E.	HD-SL	Edwards, H. D.	NGL 11-002-004	2127
31	HAMPTON INSTITUTE	Young, G. R.	LARC	Venable, D. D.	NAG 1-87	4142
31	HARVARD UNIVERSITY	Donley, J. L.	GSFC	Reeves, F. M.	NAS 5-23494	2644
31	HARVARD UNIVERSITY	Bullock, G. D.	GSFC	McElroy, M. B.	NAS 5-24134	2645
31	HARVARD UNIVERSITY	Fishman, J.	LARC	McElroy, M. B.	NAG 1-55	2636
31	HARVARD UNIVERSITY	Ballance, C. W.	WFC	Anderson, J. G.	NAS 6-3061	2648
31	HARVARD UNIVERSITY	Bogges, N. W.	HD-SC	Parkinson, W. H.	NSG 7304	2676
31	HARVARD UNIVERSITY	Murphy, R. E.	HD-SL	Goody, R. M.	NGL 22-007-228	2656
31	HARVARD UNIVERSITY	Murphy, R. E.	HD-SL	Pipkin, F. M.	NSG 7095	2674
31	HARVARD UNIVERSITY	Seals, R. K., Jr.	HD-ST	Anderson, J. G.	NASW 1	2652
31	HARVARD UNIVERSITY	Kakar, R. K.	HD-ST	McElroy, M. B.	NSG 1	2662
31	IOWA STATE UNIV	Pollack, J. B.	ARC	Grossman, A. S.	NCA 2-340002	2336

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31	IOWA STATE UNIV	Shukla, J.	GSFC	Chen, T. C.	NAG 5-104	2331
31	IOWA STATE UNIV	Halem, M.	GSFC	Chen, T. C.	NSG 5339	2350
31	JOHNS HOPKINS UNIV	Bullock, G. D.	GSFC	Doering, J. P.	NAS 5-11415	2482
31	KANSAS STATE UNIV	Baldwin, R. R.	JSC	Kanemasu, E. T.	NAS 9-14899	2380
31	KEARNEY STATE COL	Patterson, A. E.	JSC	Glasser, M. E.	NAS 9-16162	3022
31	LE MOYNE-OWEN COL	Woods, D. C.	LARC	Matthews, N	NSG 1593	3814
31	LA ST U&A&M COL-BRGE	Murphy, R. E.	HD-SL	Henry, J. W.	NAGW 48	2447
31	MASS INST OF TECH	Whitten, R. C.	ARC	Prinn, R. G.	NSG 2010	2775
31	MASS INST OF TECH	Susskind, J.	GSFC	Staelin, D. H.	NAG 5-10	2699
31	MASS INST OF TECH	Brandeen, W. R.	GSFC	Staelin, D. H.	NAS 5-21980	2717
31	MASS INST OF TECH	Halem, M.	GSFC	Charney, J.	NGR 22-009-727	2762
31	MASS INST OF TECH	Hansen, J. E.	GSFC	Stone, P. H.	NSG 5113	2798
31	MASS INST OF TECH	Halem, M.	GSFC	Charney, J. G.	NSG 5166	2799
31	MASS INST OF TECH	Reichle, H. G.	LARC	Newell, R. F.	NAG 1-92	2688
31	MASS INST OF TECH	Murphy, R. E.	HD-SL	James, E. L.	NAGW 68	2709
31	MASS INST OF TECH	Murphy, R. E.	HD-SL	Lewis, J. S.	NGL 22-009-521	2750
31	MASS INST OF TECH	Murphy, R. E.	HD-SL	McCord, T. B.	NSG 7638	2818
31	MORGAN STATE UNIV	Hwang, P. H.	GSFC	Knox, N	NAG 5-14	2510
31	MORGAN STATE UNIV	Duncan, C. H.	GSFC	Oliver, F. W.	NSG 5401	2515
31	MURRAY STATE U-KY	Atwell, B. H.	NSTL	Weber, N	NAS13-111	2426
31	NEW MEX INST MINING	Vaughan, O. H.	MSFC	Brooks, M.	NAS 8-33817	3119
31	NEW YORK UNIVERSITY	Halem, M.	GSFC	Schwartz, J. T.	NSG 5034	3262
31	NEW YORK UNIVERSITY	Halem, M.	GSFC	Isaacson, E.	NSG 5130	3263
31	NEW YORK UNIVERSITY	Murphy, R. E.	HD-SL	Hoffert, M. I.	NSG 7591	3265
31	OHIO STATE UNIV	Toth, R. A.	HD-EB	Shaw, J. H.	NSG 7479	3528
31	OHIO STATE UNIV	Tilford, S. G.	HD-ST	Seliga, T. A.	NASW 3149	3503
31	OKLAHOMA STATE UNIV	Vitale, J. A.	HD-ET	Walsh, S.	NSG 7640	3600
31	OLD DOMINION UNIV	Suttles, J. T.	LARC	Tiwari, S. N.	NAG 1-21	4155
31	OLD DOMINION UNIV	Reichle, H. G., Jr	LARC	Kindle, E. C.	NCC 1-2	4165
31	OLD DOMINION UNIV	Browell, E. V.	LARC	Kindle, E. C.	NCC 1-28	4168
31	OLD DOMINION UNIV	Levine, J. S.	LARC	Tiwari, S. N.	NCC 1-30	4169
31	OLD DOMINION UNIV	McMaster, L. R.	LARC	Chu, W. P.	NSG 1341	4182
31	OLD DOMINION UNIV	Beck, S. M.	LARC	Kindle, E. C.	NSG 1395	4186
31	OLD DOMINION UNIV	Suttles, J. T.	LARC	Tiwari, S. N.	NSG 1522	4195
31	OREGON GRADUATE CTR	Reichle, H. G.	LARC	Rasmussen, R. A.	NAG 1-35	3618
31	OREGON GRADUATE CTR	Toth, R. A.	HD-EB	Rasmussen, R. A.	NSG 7457	3621
31	OREGON STATE UNIV	Shukla, J.	GSFC	Deardorff, J. W.	NAG 5-51	3623
31	OREGON STATE UNIV	Halem, M.	GSFC	Esbensen, S.	NSG 5308	3630
31	OREGON STATE UNIV	Adler, R. F.	GSFC	Decker, F. W.	NSG 5343	3631
31	OREGON STATE UNIV	Halem, M.	GSFC	Gates, W. L.	NSG 5353	3632
31	PENN STATE U-UNIV PK	Oseroff, H.	GSFC	Carlson, T. N.	NAS 5-24264	3698
31	PENN STATE U-UNIV PK	Labovitz, M.	GSFC	McMurtry, G. J.	NAS 5-25702	3700
31	PENN STATE U-UNIV PK	Uccellini, L. W.	GSFC	Anthes, R. A.	NSG 5205	3735
31	PENN STATE U-UNIV PK	Greaves, J. R.	GSFC	Clark, J. H.	NSG 5347	3738
31	PENN STATE U-UNIV PK	Kaufman, J. W.	MSFC	Clark, J. H.	NAS 8-33794	3706
31	PENN STATE U-UNIV PK	Fichtl, G. H.	MSFC	Clark, J. H.	NAS 8-33797	3707
31	PENN STATE U-UNIV PK	Duke, J. R.	WFC	Olivero, J.	NAS 6-2726	3705
31	POLY INST OF NY	Spencer, N. W.	GSFC	Gross, S. H.	NSG 5284	3272
31	PURDUE UNIVERSITY	Curran, R. J.	GSFC	Avies, R. D.	NAG 5-101	2294
31	PURDUE UNIVERSITY	Shukla, T.	GSFC	Davies, P.	NAG 5-106	2295
31	RENSSELAER POLY-NY	Yates, I. C.	MSFC	Wu, S. T.	NAS 4-33562	3285
31	RENSSELAER POLY-NY	Gevarter, W. B.	HD-RT	Yerazunis, S.	NASW 3279	3287
31	RENSSELAER POLY-NY	Murphy, R. E.	HD-SL	Harteck, P.	NGL 33-018-007	3289
31	RICE UNIVERSITY	Teegarden, B.	GSFC	Haymes, R. C.	NAS 5-25032	3876
31	RICE UNIVERSITY	Spencer, N. W.	GSFC	Reiff, P. H.	NSG 5286	3892
31	RICE UNIVERSITY	Vaughan, W. W.	MSFC	Few, A. A.	NAS 8-33715	3881
31	RICE UNIVERSITY	Quaide, W. L.	HD-SL	Michel, F. C.	NSG 7032	3894
31	RICE UNIVERSITY	Murphy, R. E.	HD-SL	Chamberlain, J. W.	NSG 7043	3895

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31	RICE UNIVERSITY	Murphy, R. E.	HD-SL	Chamberlain, J. W.	NSG 7386	3899
31	ST LOUIS UNIVERSITY	Hill, K.	MSFC	Fuelburg, H. E.	NAS 8-33370	2985
31	SAN DIEGO STATE UNIV	Levine, J. S.	LARC	Angione, R. J.	NSG 1430	1315
31	SAN JOSE STATE UNIV	Whitten, R. C.	ARC	Riegel, C. A.	NCA 2-675007	1328
31	SAN JOSE STATE UNIV	Pollack, J. B.	ARC	Riegel, C. A.	NCC 2-2	1334
31	SAN JOSE STATE UNIV	Whitten, R. C.	ARC	Riegel, C. A.	NCC 2-68	1346
31	SAN JOSE STATE UNIV	Danielsen, E. F.	ARC	Riegel, C. A.	NCC 2-73	1348
31	SO UNIV-BATON ROUGE	ONeal, R. L.	LARC	Scott, R. L.	NAS 1-15335	2458
31	STANFORD UNIVERSITY	Halem, M.	GSFC	Spreiter, J. R.	NSG 5254	1469
31	STANFORD UNIVERSITY	Guynes, B. V.	MSFC	DaRosa, A. V.	NAS 8-32852	1388
31	STANFORD UNIVERSITY	Decher, R.	MSFC	Everitt, C. W.	NAS 8-33796	1392
31	STANFORD UNIVERSITY	Murphy, R. E.	HD-SL	Eshleman, V. R.	NGL 05-020-014	1438
31	STATE UNIV NY-ALBANY	Page, W. A.	ARC	Lazrus, A. L.	NSG 2386	3310
31	STATE UNIV NY-ALBANY	Holdeman, J. D.	LERC	Falconer, P.	NSG 3138	3312
31	STATE UNIV NY-ALBANY	Turner, R. E.	MSFC	Orville, R. F.	NAS 8-33380	3305
31	STATE UNIV NY-ALBANY	Murphy, R. E.	HD-SL	Weinberg, J. L.	NSG 7093	3314
31	ST U NY COL-PURCHASE	Halem, M.	GSFC	Tenenbaum, J.	NSG 5077	3352
31	STATE U NY-STONY BRK	Chang, S.	ARC	Owens, T.	NCA 2-760001	3328
31	STATE U NY-STONY BRK	Stewart, R. W.	GSFC	Hogan, J. S.	NCC 5-7	3330
31	STATE U NY-STONY BRK	Hansen, J. E.	GSFC	Owen, T.	NCC 5-23	3331
31	STATE U NY-STONY BRK	Hansen, J. E.	GSFC	Owen, T.	NGR 33-015-165	3336
31	STATE U NY-STONY BRK	Hall, J. B.	LARC	Cess, R. D.	NAS 1-16444	3325
31	STATE U NY-STONY BRK	Murphy, R. E.	HD-SL	Barghoorn, F. S.	NGR 33-015-139	3334
31	TEXAS A&I UNIVERSITY	Krishen, K.	JSC	Jean, B. R.	NAS 9-16102	3903
31	TEXAS A&M UNIVERSITY	Schmugge, T. J.	GSFC	McFarland, M. J.	NSG 5193	3947
31	TEXAS A&M UNIVERSITY	Hill, C. K.	MSFC	Scoggins, J. R.	NAS 8-31773	3916
31	TEXAS A&M UNIVERSITY	Turner, R. F.	MSFC	Scoggins, J. R.	NAS 8-33776	3920
31	TEXAS A&M UNIVERSITY	Murphy, R. E.	HD-SL	Kattawar, G. W.	NGR 44-001-117	3936
31	UNIV ALA-HUNTSVILLE	Hanssen, E.	MSFC	Krall, K. R.	NAS 8-33525	1055
31	UNIV ALA-HUNTSVILLE	Tandberghanssen, E.	MSFC	Wu, S. T.	NAS 8-33526	1056
31	UNIV ALA-UNIVERSITY	Peters, P. N.	MSFC	Bertsch, W.	NAS 8-33507	1074
31	UNIV ALASKA-FAIRBANKS	Milliner, C. F.	WFC	Brown, N. B., Jr.	NAS 6-3065	1079
31	UNIV OF ARIZONA	Fimmel, R. O.	ARC	Hunter, D. M.	NAS 2-9487	1129
31	UNIV OF ARIZONA	Spencer, N. W.	GSFC	Tomasko, M. G.	NAG 5-76	1119
31	UNIV OF ARIZONA	Sours, W. T.	GSFC	Smith, B. A.	NAS 5-25484	1132
31	UNIV OF ARIZONA	Wolff, C. L.	GSFC	Hill, H. A.	NAS 5-26176	1135
31	UNIV OF ARIZONA	Donn, B.	GSFC	Martineck, S.	NCA 5-93	1148
31	UNIV OF ARIZONA	LeVine, D. M.	GSFC	Ragudell, K. M.	NSG 5023	1168
31	UNIV OF ARIZONA	Jaffers, W.	KSC	Krider, E. P.	NAS10-8518	1146
31	UNIV OF ARIZONA	McCormick, M. P.	LARC	Herman, B. M.	NAS 1-14332	1126
31	UNIV OF ARIZONA	McMaster, L. R.	LARC	Herman, B. M.	NAS 1-14928	1127
31	UNIV OF ARIZONA	Fowles, W. W.	MSFC	Gall, R. L.	NAS 8-33815	1143
31	UNIV OF ARIZONA	Murphy, R. E.	HD-SL	Sill, G. T.	NAGW 67	1125
31	UNIV OF ARIZONA	Fellows, R. F.	HD-SL	Hoening, S. A.	NGL 03-002-019	1151
31	UNIV OF ARIZONA	Murphy, R. E.	HD-SL	Hunten, D. M.	NSG 7558	1189
31	UNIV OF ARIZONA	Murphy, R. E.	HD-SL	Tomasko, M. G.	NSG 7573	1190
31	UNIV OF ARIZONA	Newton, G. P.	HD-ST	Hunten, D. M.	NSG 7485	1186
31	UNIV ARKANSAS-FAYETV	Smith, O. E.	MSFC	Tubbs, J. D.	NAS 8-33224	1199
31	UNIV CALIF-BERKELEY	Wales, R. O.	GSFC	Mozar, F. S.	NAS 5-25958	1515
31	UNIV CALIF-DAVIS	Millard, J. P.	ARC	Hatfield, J. L.	NCA 2-180901	1568
31	UNIV CALIF-IRVINE	Seals, R. K., Jr.	HD-EB	Molina, M. J.	NSG 7208	1582
31	UNIV CALIF-L ANGELES	Fimmel, R. O.	ARC	Russell, C. T.	NAS 2-9491	1597
31	UNIV CALIF-L ANGELES	Ehernberger, L. J.	DFRC	Pruppacher, H. R.	NAG 4-3	1587
31	UNIV CALIF-L ANGELES	Ehernberger, L. J.	DFRC	Wurtick, M. C.	NSG 4024	1632
31	UNIV CALIF-L ANGELES	Halem, M.	GSFC	Suarez, J.	NGR 05-007-328	1620
31	UNIV CALIF-L ANGELES	Reed, E. I.	GSFC	Thorne, R. M.	NSG 5190	1634
31	UNIV CALIF-L ANGELES	Murphy, R. E.	HD-SL	Siscoe, C. L.	NAGW 87	1594
31	UNIV CALIF-L ANGELES	Murphy, R. E.	HD-SL	Schubert, G.	NSG 7164	1641

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF IOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
31	UNIV CALIF-L ANGELES	Murphy, R. E.	HD-SL	Allen, L. H.	NSG 7239	1642
31	UNIV CALIF-L ANGELES	Murphy, R. E.	HD-SL	Coleman, P. J.	NSG 7295	1644
31	UNIV CALIF-L ANGELES	Murphy, R. E.	HD-SL	Martin, T. Z.	NSG 7594	1654
31	UNIV CALIF-SAN DIEGO	Shukla, J.	GSFC	Roads, J. O.	NAG 5-105	1667
31	UNIV CALIF-SAN DIEGO	Donley, J. L.	GSFC	Hudson, H. S.	NSG 5321	1703
31	UNIV CALIF-SAN DIEGO	Donley, J. L.	GSFC	Hudson, H. S.	NSG 5322	1704
31	UNIV CALIF-SAN DIEGO	Sullivan, E. M.	LARC	Cicerone, R. J.	NAG 1-77	1659
31	UNIV CALIF-SAN DIEGO	Chappell, C. R.	MSFC	Canfield, R. C.	NAS 8-33795	1679
31	UNIV CALIF-SAN DIEGO	Toth, R. A.	HD-EB	Cicerow, R. J.	NAGW 45	1669
31	UNIV OF CENTRAL FLA	Rudolph, H. W.	KSC	Hudson, G. M.	NAS10-9897	2046
31	UNIV OF CENTRAL FLA	Smith, O. F.	MSFC	Somerville, P. N.	NAS 8-33071	2043
31	UNIV OF CHICAGO	Adler, R. F.	GSFC	Srivastava, R. C.	NSG 5402	2234
31	UNIV OF CHICAGO	Guynes, B. V.	MSFC	Meyer, P.	NAS 8-32828	2214
31	UNIV OF CHICAGO	Dodge, J. C.	HD-EB	Fujita, T. T.	NGR 14-001-008	2225
31	UNIV OF CHICAGO	Kaluzienski, L. J.	HD-SC	Muller, D.	NSG 7464	2239
31	UNIV OF CHICAGO	Seals, R. K., Jr.	HD-ST	Kaplan, L. D.	NSG 7356	2238
31	UNIV COLORADO-BOLDR	Bullock, G. D.	GSFC	Barth, C. A.	NSG 5-11405	1865
31	UNIV COLORADO-BOLDR	Corrigan, J. P.	GSFC	Illing, R. M.	NAS 5-22409	1866
31	UNIV COLORADO-BOLDR	Donley, J. L.	GSFC	Mount, G. H.	NAS 5-26170	1871
31	UNIV COLORADO-BOLDR	Donley, J. L.	GSFC	Rottman, G. J.	NAS 5-26172	1872
31	UNIV COLORADO-BOLDR	Reber, C. A.	GSFC	London, J.	NAS 5-26303	1873
31	UNIV COLORADO-BOLDR	Reber, C. A.	GSFC	London, J.	NSG 5153	1886
31	UNIV COLORADO-BOLDR	Donley, J. L.	GSFC	Gebbie, K. B.	NSG 5318	1890
31	UNIV COLORADO-BOLDR	Reed, F. I.	GSFC	Rusch, D. W.	NSG 5372	1893
31	UNIV COLORADO-BOLDR	Toth, R. A.	HD-EB	Thomas, R. J.	NSG 7231	1896
31	UNIV COLORADO-BOLDR	Toth, R. A.	HD-EB	Timothy, J. G.	NSG 7559	1906
31	UNIV COLORADO-BOLDR	Murphy, R. F.	HD-SL	Lamont, P. J.	NGL 06-003-052	1879
31	UNIV COLORADO-BOLDR	Murphy, R. F.	HD-SL	Barth, C. A.	NGR 06-003-127	1882
31	UNIV OF CONNECTICUT	Halem, M.	GSFC	Bock, P.	NSG 5075	1932
31	UNIV OF CONNECTICUT	Halem, M.	GSFC	Lin, J. D.	NSG 5346	1933
31	UNIV DC-VAN NESS	Curran, R. J.	GSFC	Dhuna, H.	NAG 5-75	2024
31	UNIV OF DAYTON	Camp, D. W.	MSFC	Leurs, J. K.	NAS 8-33369	3564
31	UNIV OF DAYTON	Duke, J. R.	WFC	Luers, J. K.	NAS 6-2456	3560
31	UNIV OF DAYTON	Rossi, L. C.	WFC	Luers, J. K.	NAS 6-3086	3561
31	UNIV OF DELAWARE	Shukla, J.	GSFC	Willmott, C. J.	NAG 5-107	1947
31	UNIV OF DENVER	Munoz, R. M.	ARC	Murcay, D. G.	NAS 2-10158	1915
31	UNIV OF DENVER	Kunde, V. G.	GSFC	Goldman, A.	NAS 5-25097	1916
31	UNIV OF DENVER	Goad, J. H.	LARC	Goldman, A.	NAG 1-56	1911
31	UNIV OF DENVER	Goad, J. H.	LARC	Murcay, D. G.	NAG 1-57	1912
31	UNIV OF DENVER	McMaster, L. R.	LARC	Murcay, D. G.	NAS 1-14929	1913
31	UNIV OF DENVER	McMaster, L. R.	LARC	Murcay, D. G.	NAS 1-16306	1914
31	UNIV OF DENVER	Goad, J. H.	LARC	Goldman, A.	NSG 1405	1920
31	UNIV OF FLORIDA	Wilhelms, A. J.	ARC	Lanzerotti, L. J.	NAS 2-9576	2051
31	UNIV OF FLORIDA	Horn, F. W.	KSC	Martsoff, J. D.	NAS10-9611	2055
31	UNIV OF FLORIDA	Horn, F. W.	KSC	Martsoff, J. D.	NAS10-9876	2057
31	UNIV OF FLORIDA	Horn, F. W.	KSC	Martsoff, J. D.	NAS10-9892	2058
31	UNIV OF FLORIDA	Jaffers, W.	KSC	Uman, M. A.	NGR 10-005-169	2063
31	UNIV OF FLORIDA	Reichle, H. G., Jr.	LARC	Chenoides, W. L.	NSG 1600	2069
31	UNIV OF FLORIDA	Murphy, R. E.	HD-SL	Green, A. S.	NGL 10-005-008	2061
31	UNIV OF HAWAII-MANOA	Greaves, J. R.	GSFC	Sadler, J. C.	NAS 5-25376	2161
31	UNIV OF HAWAII-MANOA	Theon, J. S.	GSFC	Ramoge, C. S.	NSG 5159	2170
31	UNIV OF HAWAII-MANOA	Donley, J. L.	GSFC	Jefferies, J. T.	NSG 5317	2173
31	UNIV OF HAWAII-MANOA	Donley, J. L.	GSFC	Orrall, F. Q.	NSG 5326	2174
31	UNIV OF HAWAII-MANOA	Quaide, W. L.	HD-SL	McCord, T. B.	NSG 7590	2183
31	UNIV HOUSTON-HOUSTON	Murphy, R. F.	HD-SL	Smith, R. S.	NAGW 39	3956
31	UNIV HOUSTON-CL LAKE	Clark, J.	MSFC	Samfield, E.	DEN 8-1	3977
31	UNIV ILLINOIS-URBANA	Donley, J. L.	GSFC	Mouschovias, T. C.	NSG 5319	2261
31	UNIV ILLINOIS-URBANA	Toth, R. A.	HD-EB	Bowhill, S. A.	NSG 7506	2266

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31	UNIV OF IOWA	Davis, M. A.	GSFC	Gurnett, D. A.	NAS 5-11431	2355
31	UNIV OF IOWA	Wales, R. O.	GSFC	Frank, L. A.	NAS 5-26257	2366
31	UNIV OF IOWA	Guynes, B. V.	MSFC	Shawhan, S. D.	NAS 8-32807	2367
31	UNIV OF KANSAS	Schmugge, T. J.	GSFC	Ulaby, F. T.	NAS 5-25807	2397
31	UNIV OF KANSAS	Demel, K. J.	JSC	Ulaby, F. T.	NAS 9-15421	2398
31	UNIV OF KENTUCKY	Reichle, H. G., Jr.	LARC	Peters, L. K.	NSG 1424	2432
31	UNIV OF KENTUCKY	Reichle, H. G., Jr.	LARC	Peters, L. K.	NSG 1501	2433
31	UNIV MARYLAND-COL PK	Page, W. A.	ARC	Zoller, W. H.	NAG 2-28	2520
31	UNIV MARYLAND-COL PK	Halem, M.	GSFC	Baer, F.	NAG 5-26	2522
31	UNIV MARYLAND-COL PK	Donley, J. L.	GSFC	Schmadl, E. J.	NAG 5-29	2523
31	UNIV MARYLAND-COL PK	Friskey, J. L.	GSFC	Currie, D. G.	NAG 5-90	2526
31	UNIV MARYLAND-COL PK	Sours, W. T.	GSFC	Currie, D. G.	NAS 5-25486	2541
31	UNIV MARYLAND-COL PK	Donn, B. D.	GSFC	Trasco, J. D.	NGL 21-002-033	2560
31	UNIV MARYLAND-COL PK	Hartle, R. E.	GSFC	Matthews, D. L.	NGR 21-002-096	2563
31	UNIV MARYLAND-COL PK	Neil, E. A.	GSFC	Thompson, O. E.	NSG 5209	2587
31	UNIV MARYLAND-COL PK	Friskey, J. L.	GSFC	Currie, D. G.	NSG 5234	2588
31	UNIV MARYLAND-COL PK	Winston, G. C.	GSFC	Currie, D. G.	NSG 5287	2589
31	UNIV MARYLAND-COL PK	Donley, J. L.	GSFC	Kundu, M. R.	NSG 5320	2592
31	UNIV MARYLAND-COL PK	Donley, J. L.	GSFC	Tidman, D. A.	NSG 5323	2593
31	UNIV MARYLAND-COL PK	Spencer, N. W.	GSFC	Lin, C. S.	NSG 5404	2596
31	UNIV MARYLAND-COL PK	Browell, E. V.	LARC	Wilkerson, T. D.	NCC 1-25	2556
31	UNIV MARYLAND-COL PK	Decher, R.	MSFC	Alley, C. O.	NAS 8-33798	2550
31	UNIV MARYLAND-COL PK	Urban, E. W.	MSFC	Paik, H. J.	NAS 8-33822	2551
31	UNIV MD-EASTRN SHORE	Trafford, G. H.	WFC	Chapin, E. W.	NAG 6-6	2613
31	UNIV OF MIAMI	Nelsen, E. D.	GSFC	Gordon, H. R.	NAS 5-22963	2076
31	UNIV OF MIAMI	Greaves, J. R.	GSFC	Krause, E. B.	NAS 5-25374	2077
31	UNIV OF MIAMI	Fraser, R.	GSFC	Prospero, J. M.	NAS 5-26241	2079
31	UNIV OF MIAMI	Halem, M.	GSFC	Estoque, M. A.	NSG 5342	2088
31	UNIV OF MIAMI	Fowles, W. W.	MSFC	Geisler, J. E.	NAS 8-32898	2080
31	UNIV OF MIAMI	Fowles, W. W.	MSFC	Geisler, J. E.	NAS 8-33523	2081
31	UNIV OF MIAMI	Fowles, W. W.	MSFC	Geisler, J. E.	NAS 8-33558	2082
31	UNIV MICH-ANN ARBOR	Hedin, A. E.	GSFC	Carignan, G. R.	NAS 5-11376	2871
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-11380	2872
31	UNIV MICH-ANN ARBOR	Rice, C.	GSFC	Hays, P. B.	NAS 5-23006	2873
31	UNIV MICH-ANN ARBOR	Bullock, G. D.	GSFC	Walker, J.	NAS 5-24331	2876
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-25002	2877
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-25031	2878
31	UNIV MICH-ANN ARBOR	Niemann, H. B.	GSFC	Carignan, G. R.	NAS 5-25145	2880
31	UNIV MICH-ANN ARBOR	Niemann, H. B.	GSFC	Carignan, G. R.	NAS 5-25153	2881
31	UNIV MICH-ANN ARBOR	Brace, L. H.	GSFC	Nagy, A. F.	NAS 5-25939	2886
31	UNIV MICH-ANN ARBOR	Donley, J. L.	GSFC	Hays, P. B.	NAS 5-26169	2888
31	UNIV MICH-ANN ARBOR	Sing, M. J.	GSFC	Hays, P. B.	NAS 5-26189	2889
31	UNIV MICH-ANN ARBOR	Reed, E. I.	GSFC	Stedman, D. H.	NSG 5189	2914
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Fontheim, E. G.	NSG 5281	2915
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Nagy, A. F.	NSG 5282	2916
31	UNIV MICH-ANN ARBOR	Smith, G. L.	LARC	Bartman, F. L.	NAG 1-67	2854
31	UNIV MICH-ANN ARBOR	Sullivan, E. M.	LARC	Davidson, S. R.	NAG 1-93	2856
31	UNIV MICH-ANN ARBOR	Russell, J. M., III	LARC	Drayson, S. R.	NAS 1-14394	2864
31	UNIV MICH-ANN ARBOR	Pellett, G. L.	LARC	Dingle, A. N.	NSG 1243	2906
31	UNIV MICH-ANN ARBOR	Smith, G. L.	LARC	Bartman, F. L.	NSG 1482	2908
31	UNIV MICH-ANN ARBOR	Frostrom, R. J., Jr.	WFC	Horvath, J. J.	NAS 6-2794	2890
31	UNIV MICH-ANN ARBOR	Toth, R. A.	HD-EB	Menwether, J. W.	NAGW 32	2862
31	UNIV MICH-ANN ARBOR	Watson, R. T.	HD-EB	Cochran, J. L.	NSG 7209	2918
31	UNIV MICH-ANN ARBOR	Devincenzi, D. L.	HD-SB	Kuhn, W. R.	NSG 7308	2919
31	UNIV MICH-ANN ARBOR	Murphy, R. E.	HD-SL	Cravens, T. E.	NAGW 15	2860
31	UNIV MICH-ANN ARBOR	Murphy, R. E.	HD-SL	Liu, V. C.	NGR 23-005-094	2900
31	UNIV MICH-ANN ARBOR	Murphy, R. E.	HD-SL	Atreya, S. K.	NSG 7404	2920
31	UNIV MICH-ANN ARBOR	Murphy, R. E.	HD-SL	Carignan, G. R.	NSG 7587	2923

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31	UNIV MICH-ANN ARBOR	Hedin, A. E.	HD-ST	Nagy, A. F.	NGR 23-005-015	2899
31	UNIV MICH-ANN ARBOR	Schmerling, E. R.	HD-ST	Hays, P. B.	NSG 7492	2922
31	U MINN-MNPLS-ST PAUL	Page, W. A.	ARC	Liu, B. Y.	NAG 2-31	2933
31	U MINN-MNPLS-ST PAUL	Rice, C.	GSFC	Nier, A. O.	NAS 5-11438	2936
31	U MINN-MNPLS-ST PAUL	Wende, C. D.	GSFC	Winckler, J. R.	NAS 5-23703	2937
31	U MINN-MNPLS-ST PAUL	Beswick, A. G.	LARC	Mauersberger, K.	NSG 1431	2946
31	U MINN-MNPLS-ST PAUL	Toth, R. A.	HD-EB	Mauersberger, K.	NSG 7221	2955
31	U MINN-MNPLS-ST PAUL	Murphy, R. E.	HD-SL	Nier, A. O.	NGL 24-005-009	2942
31	U MINN-MNPLS-ST PAUL	Murphy, R. E.	HD-SL	Nier, A. O.	NSG 7575	2958
31	UNIV MO-COLUMBIA	Smith, R. E.	MSFC	Tung, C.	NAS 8-31150	2987
31	UNIV MO-COLUMBIA	Smith, R. C.	MSFC	Kassner, J. I., Jr.	NAS 8-31849	2988
31	UNIV MO-ROLLA	Fallon, R. A.	MSFC	Hagen, D. F.	NAS 8-32976	2994
31	UNIV NEBRASKA-LINCOLN	Murphy, R. E.	HD-SL	Samson, J. A.	NGR 28-004-021	3025
31	UNIV NEVADA-DRI	Fallon, R. A.	MSFC	Kocmond, W. C.	NAS 8-32975	3030
31	UNIV NEVADA-DRI	Fallon, R. A.	MSFC	Hallett, J.	NAS 8-32977	3031
31	UNIV NEVADA-DRI	Fallon, R. A.	MSFC	Kocmond, W. C.	NAS 8-33273	3032
31	UNIV NEVADA-DRI	Anderson, B. J.	MSFC	Hallett, J.	NAS 8-33295	3033
31	UNIV NEVADA-DRI	Smith, R. E.	MSFC	Kocmond, W. C.	NAS 8-33820	3034
31	UNIV OF NEVADA-RENO	Schrack, B. J.	MSFC	Kocmond, W. C.	NAS 8-32313	3036
31	UNIV NEW HAMP-DURHAM	Donley, J. L.	GSFC	Chupp, F. I.	NAS 5-23761	3049
31	UNIV NEW HAMP-DURHAM	Donley, J. L.	GSFC	Fisk, L. A.	NSG 5316	3058
31	UNIV OF NEW MEXICO	Quaide, W. L.	HD-SL	Keil, K.	NSG 7579	3141
31	UNIV OKLAHOMA-NORMAN	Greaves, J. R.	GSFC	Sasaki, Y. K.	NAS 5-25375	3609
31	UNIV OKLAHOMA-NORMAN	Camp, D. W.	MSFC	McCarthy, J.	NAS 8-31377	3610
31	UNIV OREGON-EUGENE	Kakar, R. K.	HD-ST	Nolt, I. G.	NSG 7360	3638
31	UNIV OF PITTSBURGH	Murphy, R. E.	HD-SL	Fite, W. I.	NGL 39-011-013	3761
31	UNIV OF PITTSBURGH	Murphy, R. E.	HD-SL	Zipf, F. C.	NGL 39-011-030	3762
31	UNIV OF PITTSBURGH	Murphy, R. E.	HD-SL	Biondi, M. A.	NGR 39-011-137	3764
31	UNIV OF SOUTHERN CAL	Murphy, R. E.	HD-SL	Kumar, S.	NAGW 57	1789
31	UNIV OF SOUTHERN CAL	Murphy, R. E.	HD-SL	Maxworthy, T.	NGR 05-018-178	1795
31	UNIV OF SOUTHERN CAL	Murphy, R. E.	HD-SL	Judge, D. L.	NGR 05-018-180	1796
31	UNIV OF SOUTHERN CAL	Murphy, R. E.	HD-SL	Shemansky, D. F.	NSG 7595	1809
31	UNIV OF SOUTHERN CAL	Murphy, R. E.	HD-SL	Broadfoot, A. I.	NSG 7644	1810
31	UNIV TENNESSEE-KNOXV	Vaughan, O. H.	MSFC	Connett, J. R.	NAS 8-32031	3829
31	UNIV TENNESSEE-KNOXV	Camp, D. W.	MSFC	Frost, W.	NAS 8-32692	3831
31	UNIV TENNESSEE-KNOXV	Fowles, W. W.	MSFC	Antar, B. N.	NAS 8-33386	3832
31	UNIV TENNESSEE-KNOXV	Murphy, R. E.	HD-SL	Gailar, N. M.	NGL 43-001-006	3839
31	UNIV TEXAS-AUSTIN	Seyl, J. W.	JSC	Clynch, J.	NAS 9-16086	4000
31	UNIV TEXAS-DALLAS	Bullock, G. D.	GSFC	Hoffman, J. H.	NAS 5-11406	4040
31	UNIV TEXAS-DALLAS	Bullock, G. D.	GSFC	Hanson, W. B.	NAS 5-11407	4041
31	UNIV TEXAS-DALLAS	Brace, I. H.	GSFC	Heikkila, W. J.	NSG 5085	4059
31	UNIV TEXAS-DALLAS	Brace, I. H.	GSFC	Hoffman, J. H.	NSG 5087	4060
31	UNIV TEXAS-DALLAS	Spencer, N. W.	GSFC	Kiumpar, D. M.	NSG 5280	4061
31	UNIV TEXAS-DALLAS	Moore, W. W.	MSFC	Hoffman, J. H.	NAS 8-32689	4051
31	UNIV TEXAS-DALLAS	Jones, C. T.	MSFC	Tinsley, B. A.	NAS 8-33827	4053
31	UNIV TEXAS-DALLAS	Murphy, R. E.	HD-SL	Hoffman, J. H.	NAGW 64	4039
31	UNIV TEXAS-DALLAS	Murphy, R. E.	HD-SL	Hanson, W. B.	NGL 44-004-026	4055
31	UNIV TEXAS-DALLAS	Quaide, W. L.	HD-SL	Hodges, R. R.	NSG 7034	4062
31	UNIV TEXAS-DALLAS	Murphy, R. E.	HD-SL	Hanson, W. B.	NSG 7599	4063
31	UNIV TEXAS-DALLAS	Wiskerchen, M. J.	HD-ST	Hanson, W. B.	NGR 44-004-120	4057
31	UNIV TEXAS-S ANTONIO	Spencer, N. W.	GSFC	Burch, J. I.	NSG 5418	4079
31	UNIV OF UTAH	Pollack, J. B.	ARC	Liou, K.	NCA 2-821001	4091
31	UNIV OF UTAH	Greaves, J. R.	GSFC	Kao, S. K.	NAS 5-25373	4087
31	UNIV OF UTAH	Donley, J. L.	GSFC	Torr, D. G.	NAS 5-26171	4088
31	UNIV OF UTAH	Jones, C. T.	MSFC	Torr, M. R.	NAS 8-33992	4090
31	UNIV OF UTAH	Duke, J. R.	WFC	Staffanson, F. I.	NAS 6-2627	4089
31	UNIV OF UTAH	Murphy, R. E.	HD-SL	Sassen, K.	NAGW 82	4084
31	UNIV OF VIRGINIA	Rodgers, E. B.	GSFC	Frank, W. M.	NAG 5-102	4211

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31	UNIV OF WASHINGTON	Young, R. E.	ARC	Holton, J. R.	NSG 2228	4332
31	UNIV OF WASHINGTON	Page, W. A.	ARC	Charlson, R. J.	NSG 2362	4333
31	UNIV OF WASHINGTON	Nelson, D.	GSFC	Katsaros, K. B.	NAS 5-26262	4315
31	UNIV OF WASHINGTON	Reber, C. A.	GSFC	Holton, J. R.	NAS 5-26301	4316
31	UNIV OF WASHINGTON	Spencer, N. W.	GSFC	Lin, C. S.	NSG 5283	4338
31	UNIV OF WASHINGTON	Harris, J. W.	JSC	Brownlee, D. F.	NSG 9052	4350
31	UNIV OF WASHINGTON	Russell, J. M., III	LARC	Leovy, C. B.	NAS 1-14341	4313
31	UNIV OF WASHINGTON	Hall, J. B.	LARC	Hartman, D. L.	NAS 1-16462	4314
31	UNIV OF WASHINGTON	Smith, R. E.	MSFC	Hobbs, P. V.	NAS 8-33148	4318
31	UNIV OF WASHINGTON	Smith, R. E.	MSFC	Ely, J. T.	NAS 8-33884	4322
31	UNIV OF WASHINGTON	Murphy, R. E.	HD-SL	Tiltman, J. F.	NAGW 36	4311
31	UNIV OF WASHINGTON	Murphy, R. E.	HD-SL	Leovy, C. B.	NSG 7085	4343
31	UNIV OF WASHINGTON	Murphy, R. E.	HD-SL	Leovy, C. B.	NSG 7611	4348
31	UNIV WISC-MADISON	Adler, R. F.	GSFC	Schlesinger, R. F.	NAG 5-23	4362
31	UNIV WISC-MADISON	Atlas, R. M.	GSFC	Johnson, D. R.	NAG 5-81	4363
31	UNIV WISC-MADISON	Montgomery, H. E.	GSFC	Suomi, V. F.	NAS 5-21965	4369
31	UNIV WISC-MADISON	Gemmell, J. D.	GSFC	Kraushaar, W. I.	NAS 5-22410	4371
31	UNIV WISC-MADISON	Greaves, J. R.	GSFC	Suomi, V. F.	NAS 5-23462	4372
31	UNIV WISC-MADISON	Hasler, A. F.	GSFC	Suomi, V. F.	NAS 5-23706	4373
31	UNIV WISC-MADISON	Greaves, J. R.	GSFC	Suomi, V. F.	NAS 5-25148	4376
31	UNIV WISC-MADISON	Greaves, J. R.	GSFC	Suomi, V. F.	NAS 5-25377	4377
31	UNIV WISC-MADISON	Greaves, J. R.	GSFC	Johnson, D. R.	NAS 5-25399	4378
31	UNIV WISC-MADISON	Hurley, F. J.	GSFC	Smith, W. I.	NAS 5-26142	4385
31	UNIV WISC-MADISON	Halem, M.	GSFC	Kutzbach, J. I.	NSG 5152	4399
31	UNIV WISC-MADISON	Halem, M.	GSFC	Herman, G. F.	NSG 5223	4401
31	UNIV WISC-MADISON	Minzner, R. A.	GSFC	Suomi, V. F.	NSG 5251	4404
31	UNIV WISC-MADISON	Halem, M.	GSFC	Horn, L. H.	NSG 5252	4405
31	UNIV WISC-MADISON	Browell, E. V.	LARC	Floranta, F.	NAS 1-14136	4367
31	UNIV WISC-MADISON	Turner, R. F.	MSFC	Johnson, D. R.	NAS 8-33222	4387
31	UNIV WISC-MADISON	Turner, R. F.	MSFC	Suchman, D.	NAS 8-33799	4389
31	UNIV WISC-MADISON	Murphy, R. F.	HD-SL	Suomi, V. F.	NAGW 47	4366
31	UNIV WISC-MADISON	Murphy, R. F.	HD-SL	Suomi, V. F.	NGR 50-002-189	4396
31	UNIV OF WYOMING	Page, W. A.	ARC	Hofmann, D. J.	NAG 2-33	4410
31	UNIV OF WYOMING	McCormick, M. P.	LARC	Pepin, T. J.	NAS 1-14373	4411
31	UNIV OF WYOMING	McMaster, L. R.	LARC	Pepin, T. J.	NAS 1-14931	4412
31	UNIV OF WYOMING	McMaster, L. R.	LARC	Hofmann, D. J.	NAS 1-15377	4413
31	UNIV OF WYOMING	McMaster, L. R.	LARC	Pepin, T. J.	NAS 1-16305	4414
31	UNIV OF WYOMING	McMaster, L. R.	LARC	Pepin, T. J.	NSG 1518	4417
31	UNIV OF WYOMING	Smith, R. E.	MSFC	Vali, G.	NAS 8-33150	4416
31	UNIV OF WYOMING	Kakar, R. K.	HD-FB	Hofmann, D. J.	NSG 7349	4419
31	UTAH STATE UNIV	Chappell, C. R.	MSFC	Raitt, W. J.	NAS 8-32636	4099
31	UTAH STATE UNIV	Johnson, W. G.	MSFC	Williamson, P. R.	NAS 8-33381	4100
31	UTAH STATE UNIV	Johnson, W. G.	MSFC	Banks, P. M.	NAS 8-33383	4101
31	UTAH STATE UNIV	Tilford, S. G.	HD-ST	Baker, K. D.	NSG 7210	4108
31	UTAH STATE UNIV	Hedin, A. F.	HD-ST	Banks, P. M.	NSG 7289	4109
31	VIRGINIA POLY INST	Argentiero, P. D.	GSFC	Havlick, R. M.	NAS 5-25839	4257
31	VIRGINIA POLY INST	Schmidlin, F. J.	WFC	Tielemann, H. W.	NGI 47-004-067	4269
31	VIRGINIA POLY INST	Freibaum, J.	HD-SC	Krebs, A. H.	NASW 3357	4263
31	WASHINGTON ST UNIV	Toth, R. A.	HD-FB	Cronn, D.	NSG 7214	4357
31	WASHINGTON UNIVERSTY	Cuzzi, J. N.	ARC	Smith, W. H.	NCA 2-841001	3008
31	WASHINGTON UNIVERSTY	Harris, J. W.	JSC	Hohenberg, C. M.	NAG 9-7	3004
31	WASHINGTON UNIVERSTY	Boughner, R. F.	LARC	Smith, W. H.	NAG 1-38	3002
31	WAYNE STATE UNIV	Munoz, R. M.	ARC	Wang, C. C.	NAG 2-39	2926
31	WEBER STATE COL	DeLoach, A. C.	MSFC	Tripp, D. A.	NAS 8-33113	4112
31	YALE UNIVERSITY	Toon, O. B.	ARC	Wegner, P. P.	NAG 2-15	1938
31	YALE UNIVERSITY	Murphy, R. E.	HD-SL	Cross, R. J., Jr	NGI 07-004-043	1942
31	YORK UNIVERSITY	Cooper, D. M.	ARC	Nicholls, R. W.	NSG 7223	4423
32	ARIZONA STATE UNIV	Pollack, J. B.	ARC	Krinsley, D.	NCA 2-35001	1099

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32	ARIZONA STATE UNIV	Harris, J. W.	JSC	Buseck, P. R.	NAG 9-4	1092
32	ARIZONA STATE UNIV	Devincenzi, D. L.	HD-SB	Cronin, J. R.	NSG 7255	1105
32	ARIZONA STATE UNIV	Boyce, J. M.	HD-SL	Malin, M. C.	NAGW 1	1093
32	ARIZONA STATE UNIV	Boyce, J. M.	HD-SL	Krinsley, D.	NAGW 24	1094
32	ARIZONA STATE UNIV	Quaide, W. L.	HD-SL	Greeley, R.	NAGW 56	1095
32	ARIZONA STATE UNIV	French, B. M.	HD-SL	Moore, C. B.	NGL 03-001-001	1100
32	ARIZONA STATE UNIV	French, B. M.	HD-SL	Larimer, J. W.	NSG 7040	1104
32	ARIZONA STATE UNIV	Boyce, J. M.	HD-SL	Greeley, R.	NSG 7415	1106
32	ARIZONA STATE UNIV	Dwornik, S. E.	HD-SL	Greeley, R.	NSG 7429	1107
32	ARIZONA STATE UNIV	Boyce, J. M.	HD-SL	Rankin, R. L.	NSG 7630	1109
32	ARIZONA STATE UNIV	Dwornik, S. E.	HD-SL	Sheridan, M.	NSG 7642	1110
32	AUBURN UNIV-AUBURN	Slaby, J. A.	MSFC	Johnson, R. C.	NAS 8-34130	1018
32	BOSTON UNIVERSITY	Devincenzi, D. L.	HD-SB	Margulis, L.	NGR 22-004-025	2624
32	BROWN UNIVERSITY	Holweck, E. C.	GSFC	Parmentier, E. M.	NAG 5-50	3777
32	BROWN UNIVERSITY	Quaide, W. L.	HD-SL	Head, J. W.	NAGW 28	3778
32	BROWN UNIVERSITY	Dwornik, S. E.	HD-SL	Head, J. W.	NASW 3285	3780
32	BROWN UNIVERSITY	Boyce, J. M.	HD-SL	Head, J. W.	NGR 40-002-088	3781
32	BROWN UNIVERSITY	Boyce, J. M.	HD-SL	Head, J. W.	NGR 40-002-116	3782
32	BROWN UNIVERSITY	Boyce, J. M.	HD-SL	Head, J. W.	NSG 7569	3785
32	BROWN UNIVERSITY	Boyce, J. M.	HD-SL	Head, J. W.	NSG 7570	3786
32	BROWN UNIVERSITY	Quaide, W. L.	HD-SL	Rutherford, M. J.	NSG 7589	3787
32	BROWN UNIVERSITY	Quaide, W. L.	HD-SL	Parmentier, E. M.	NSG 7605	3788
32	CALIF INST OF TECH	Cohen, S. C.	GSFC	Melosh, H. J.	NCC 5-17	1229
32	CALIF INST OF TECH	Allenby, R. J.	GSFC	Whitcomb, J. H.	NSG 5224	1251
32	CALIF INST OF TECH	Allenby, R. J.	GSFC	Melosh, H. J.	NSG 5267	1254
32	CALIF INST OF TECH	Vitale, J. A.	HD-ET	Anderson, D. L.	NSG 7610	1272
32	CALIF INST OF TECH	Quaide, W. L.	HD-SL	Anderson, D. L.	NGL 05-002-069	1232
32	CALIF INST OF TECH	Quaide, W. L.	HD-SL	Ahrens, T. J.	NGL 05-002-105	1233
32	CALIF INST OF TECH	Boyce, J. M.	HD-SL	Shoemaker, E. M.	NGR 05-002-303	1245
32	CALIF INST OF TECH	Quaide, W. L.	HD-SL	Ahrens, T. J.	NSG 7129	1262
32	CALIF INST OF TECH	Quaide, W. L.	HD-SL	Burnett, D. S.	NSG 7202	1263
32	CALIF INST OF TECH	Quaide, W. L.	HD-SL	Melosh, H. J.	NSG 7316	1264
32	CALIF INST OF TECH	Boyce, J. M.	HD-SL	Albee, A. L.	NSG 7442	1267
32	CALIF INST OF TECH	Quaide, W. L.	HD-SL	Muhleman, D. O.	NSG 7565	1271
32	CAL STATE U-FULLERTN	French, B. M.	HD-SL	Woolum, D. S.	NSG 7314	1290
32	CARNEGIE-MELLON UNIV	French, B. M.	HD-SL	Kohman, T. P.	NSG 7585	3649
32	CITY COLLEGE OF N Y	Boyce, J. M.	HD-SL	Weiss, D.	NAGW 22	3145
32	CITY COLLEGE OF N Y	Quaide, W. L.	HD-SL	Saxena, S. K.	NAGW 59	3146
32	COLUMBIA UNIVERSITY	Holweck, E. C.	GSFC	Haxby, W. F.	NAG 5-33	3162
32	COLUMBIA UNIVERSITY	Harper, E. L.	GSFC	Watts, T. S.	NAG 5-98	3163
32	COLUMBIA UNIVERSITY	Smith, D. E.	GSFC	Watts, A. B.	NCC 5-3	3177
32	COLUMBIA UNIVERSITY	Ungar, S. G.	GSFC	Lewis, R. A.	NCC 5-20	3179
32	COLUMBIA UNIVERSITY	Allenby, R. J.	GSFC	Bilham, R. G.	NSG 5072	3184
32	COLUMBIA UNIVERSITY	Ungar, S. G.	GSFC	High, C. J.	NSG 5080	3185
32	COLUMBIA UNIVERSITY	Labovitz, M.	GSFC	Kuo, J. T.	NSG 5222	3188
32	COLUMBIA UNIVERSITY	Smith, D. E.	GSFC	Talwani, M.	NSG 5273	3189
32	COLUMBIA UNIVERSITY	Quaide, W. L.	HD-SL	Keith, S. J.	NSG 7194	3191
32	COLUMBIA UNIVERSITY	Quaide, W. L.	HD-SL	Takahashi, T.	NSG 7434	3192
32	COLUMBIA UNIVERSITY	French, B. M.	HD-SL	Zindler, A.	NSG 7466	3193
32	CORNELL UNIVERSITY	Holweck, E. C.	GSFC	Turcotte, D. L.	NAG 5-39	3199
32	CORNELL UNIVERSITY	Harper, E. L.	GSFC	Oliver, J.	NAG 5-40	3200
32	CORNELL UNIVERSITY	Allenby, R. J.	GSFC	Oliver, J.	NCC 5-4	3209
32	CORNELL UNIVERSITY	Cohen, S. C.	GSFC	Turcotte, D. L.	NSG 5060	3228
32	CORNELL UNIVERSITY	Boyce, J. M.	HD-SL	Veverka, J.	NASW 3342	3204
32	CORNELL UNIVERSITY	Quaide, W. L.	HD-SL	Turcotte, D. L.	NGR 33-010-108	3215
32	CORNELL UNIVERSITY	Boyce, J. M.	HD-SL	Sagan, C. E.	NGR 33-010-220	3219
32	CORNELL UNIVERSITY	Boyce, J. M.	HD-SL	Veverka, J.	NSG 7156	3231
32	CORNELL UNIVERSITY	Boyce, J. M.	HD-SL	Veverka, J.	NSG 7498	3237

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32	CORNELL UNIVERSITY	Boyce, J. M.	HD-SL	Veverka, J.	NSG 7546	3239
32	CORNELL UNIVERSITY	Boyce, J. M.	HD-SL	Veverka, J.	NSG 7547	3240
32	CORNELL UNIVERSITY	Quaide, W. L.	HD-SL	Burns, J. A.	NSG 7593	3241
32	CORNELL UNIVERSITY	Quaide, W. L.	HD-SL	Veverka, J.	NSG 7606	3242
32	DARTMOUTH COLLEGE	Ungar, S. G.	GSFC	Stoiber, R. E.	NCC 5-22	3040
32	DARTMOUTH COLLEGE	Corrigan, J. P.	GSFC	Sonnerup, B. U.	NSG 5348	3045
32	GEORGIA INST OF TECH	Kassak, J. E.	KSC	Steinway, W. J.	NAS10-9757	2124
32	HARVARD UNIVERSITY	Devincenzi, D. L.	HD-SB	Barghoorn, F. S.	NGL 22-007-069	2655
32	HARVARD UNIVERSITY	Quaide, W. L.	HD-SL	Cameron, A. G.	NGR 22-007-269	2659
32	HARVARD UNIVERSITY	Quaide, W. L.	HD-SL	OConnell, R. J.	NSG 7513	2680
32	HUNTER COLLEGE	Ungar, S. G.	GSFC	Coiner, J. C.	NSG 5325	3246
32	INDIANA U-BLOOMINGTN	McKay, D. S.	JSC	Basu, A.	NSG 9072	2284
32	INDIANA U-BLOOMINGTN	Harris, J. W.	JSC	Basu, A.	NSG 9077	2285
32	INDIANA U-BLOOMINGTN	Devincenzi, D. L.	HD-SB	Hayes, J. M.	NGR 15-003-118	2281
32	INDIANA U-BLOOMINGTN	Young, R. S.	HD-SB	Ripley, E. M.	NSG 7389	2282
32	INDIANA U-BLOOMINGTN	Devincenzi, D. L.	HD-SB	Ripley, E. M.	NSG 7520	2283
32	JACKSON STATE UNIV	Atwell, B. H.	NSTL	Lang, M.	NSG 736	2961
32	JOHNS HOPKINS UNIV	Holweck, E. C.	GSFC	Marsh, B. D.	NAG 5-32	2479
32	JOHNS HOPKINS UNIV	Thomas, H. H.	GSFC	Marsh, B. D.	NAG 5-35	2480
32	JOHNS HOPKINS UNIV	Marsh, J.	GSFC	Marsh, B. D.	NCC 5-1	2493
32	JOHNS HOPKINS UNIV	Taylor, P. T.	GSFC	Marsh, B. D.	NCC 5-13	2494
32	JOHNS HOPKINS UNIV	Langel, R. A.	GSFC	Marsh, B. D.	NCC 5-18	2495
32	JOHNS HOPKINS UNIV	Langel, R. A.	GSFC	Marsh, B. D.	NSG 5269	2503
32	KANSAS STATE UNIV	Quaide, W. L.	HD-SL	Underwood, J. R.	NSG 7580	2381
32	KANSAS STATE UNIV	Boyce, J. M.	HD-SL	Underwood, J. R.	NSG 7613	2382
32	KENT STATE UNIV-KENT	Toll, D.	GSFC	Craig, R.	NAS 5-26111	3479
32	LEHIGH UNIVERSITY	French, B. M.	HD-SL	Goldstein, J. I.	NGR 39-007-043	3678
32	LA ST U&A&M COL-BRGE	Atwell, B. H.	NSTL	Whitehurst, C. A.	NAS13-142	2448
32	LA ST U&A&M COL-BRGE	Ivey, J. H.	NSTL	Whitehurst, C. A.	NAS13-148	2449
32	LA STATE U-SHREVEPT	Boyce, J. M.	HD-SL	Nummedal, D.	NSG 7542	2452
32	MASS INST OF TECH	Chang, A. T.	GSFC	Kong, J. A.	NAG 5-16	2700
32	MASS INST OF TECH	Sullivan, W. B.	GSFC	Molnar, P.	NAG 5-19	2701
32	MASS INST OF TECH	Sullivan, W. B.	GSFC	Toksoz, M. N.	NAG 5-41	2702
32	MASS INST OF TECH	Sullivan, W. B.	GSFC	Solomon, S. C.	NAG 5-44	2704
32	MASS INST OF TECH	Halem, M.	GSFC	Eagleson, P. S.	NAG 5-89	2705
32	MASS INST OF TECH	Mead, G. D.	GSFC	Molnar, P.	NCC 5-8	2744
32	MASS INST OF TECH	Mead, G. D.	GSFC	Solomon, S. C.	NCC 5-14	2745
32	MASS INST OF TECH	Clark, T. A.	GSFC	Counselman, C. C.	NGR 22-009-839	2767
32	MASS INST OF TECH	Smith, D. E.	GSFC	Sclater, J. G.	NSG 5253	2800
32	MASS INST OF TECH	Frey, H. V.	GSFC	Molnar, P.	NSG 5260	2801
32	MASS INST OF TECH	Halem, M.	GSFC	Eagleson, P. S.	NSG 5306	2802
32	MASS INST OF TECH	Flinn, E. A.	HD-ER	Counselman, C. C.	NSG 7428	2813
32	MASS INST OF TECH	Flinn, E. A.	HD-ES	Solomon, S. C.	NSG 7329	2808
32	MASS INST OF TECH	Quaide, W. L.	HD-SL	Uhlmann, D. R.	NAGW 49	2708
32	MASS INST OF TECH	Williams, R. J.	HD-SL	McCord, T. B.	NGR 22-009-790	2764
32	MASS INST OF TECH	Quaide, W. L.	HD-SL	Counselman, C. C.	NSG 7010	2803
32	MASS INST OF TECH	Quaide, W. L.	HD-SL	Toksoz, M. N.	NSG 7081	2804
32	MASS INST OF TECH	Dwornik, S. E.	HD-SL	Solomon, S. C.	NSG 7297	2806
32	MASS INST OF TECH	Quaide, W. L.	HD-SL	Burns, R. G.	NSG 7338	2810
32	MASS INST OF TECH	Quaide, W. L.	HD-SL	Pinson, W.	NSG 7467	2814
32	MASS INST OF TECH	Quaide, W. L.	HD-SL	Burns, R. G.	NSG 7604	2817
32	MISSISSIPPI STATE U	Atwell, B. H.	NSTL	Miller, W. F.	NAS13-158	2971
32	NC CAROLINA STATE U	Oseroff, H.	GSFC	Won, I. J.	NAS 5-26157	3382
32	NE LOUISIANA UNIV	Dwornik, S. E.	HD-SL	DeHon, R. A.	NSG 7357	2453
32	NE LOUISIANA UNIV	Quaide, W. L.	HD-SL	DeHon, R. A.	NSG 7420	2454
32	NE LOUISIANA UNIV	Boyce, J. M.	HD-SL	DeHon, R. A.	NSG 7534	2455
32	NE LOUISIANA UNIV	Boyce, J. M.	HD-SL	DeHon, R. A.	NSG 7628	2456
32	OHIO STATE UNIV	Stephanides, C. C.	GSFC	Mueller, I. I.	NAS 5-25888	3502

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32	OHIO STATE UNIV	Patterson, G. C.	GSFC	Rapp, R. H.	NGR 36-008-161	3507
32	OHIO STATE UNIV	Holweck, E. C.	GSFC	Mueller, I. I.	NSG 5265	3524
32	OHIO STATE UNIV	Smith, D. E.	GSFC	Schmidt, E. G.	NSG 5275	3525
32	OREGON STATE UNIV	Phinney, W. C.	JSC	Lawrence, R. D.	NAG 9-2	3624
32	OREGON STATE UNIV	Boyce, J. M.	HD-SL	Komar, P. D.	NSG 7178	3633
32	PENN STATE U-UNIV PK	Toon, O. B.	ARC	Anthes, R. A.	NCA 2-589001	3711
32	PENN STATE U-UNIV PK	Harper, E. L.	GSFC	Alexander, S. S.	NAG 5-49	3693
32	PENN STATE U-UNIV PK	Harper, E. L.	GSFC	Alexander, S. S.	NAG 5-77	3695
32	PENN STATE U-UNIV PK	Labovitz, M.	GSFC	Smith, C. B.	NAS 5-26215	3703
32	PENN STATE U-UNIV PK	Allenby, R. J.	GSFC	Alexander, S. S.	NCC 5-12	3713
32	PENN STATE U-UNIV PK	Allenby, R. J.	GSFC	Alexander, S. S.	NCC 5-19	3714
32	PENN STATE U-UNIV PK	Allenby, R. J.	GSFC	Alexander, S. S.	NSG 5185	3734
32	PENN STATE U-UNIV PK	Allenby, R. J.	GSFC	Alexander, S. S.	NSG 5276	3737
32	PENN STATE U-UNIV PK	Quaide, W. L.	HD-SL	Gold, D. P.	NGL 39-009-010	3717
32	PENN STATE U-UNIV PK	Quaide, W. L.	HD-SL	Eggler, D.	NSG 7465	3740
32	POMONA COLLEGE	Quaide, W. L.	HD-SL	Baird, A. K.	NSG 7566	1312
32	PRINCETON UNIVERSITY	Wilson, L.	GSFC	Jenkins, E. B.	NAS 5-22360	3072
32	PRINCETON UNIVERSITY	Stephanides, C. C.	GSFC	Morgan, W. J.	NAS 5-25896	3076
32	PRINCETON UNIVERSITY	Quaide, W. L.	HD-SL	Phinney, R. A.	NSG 7080	3098
32	PRINCETON UNIVERSITY	Boyce, J. M.	HD-SL	Judson, S.	NSG 7568	3102
32	PRINCETON UNIVERSITY	Quaide, W. L.	HD-SL	Hargraves, R. B.	NSG 7602	3104
32	PURDUE UNIVERSITY	Oseroff, H.	GSFC	Hinze, W. J.	NAS 5-26287	2298
32	PURDUE UNIVERSITY	Allenby, R. J.	GSFC	Braile, L. W.	NCC 5-21	2304
32	PURDUE UNIVERSITY	Amsbury, D. L.	JSC	Hoffer, R. M.	NAS 9-15889	2302
32	PURDUE UNIVERSITY	French, B. M.	HD-SL	Lipschutz, M. E.	NGL 15-005-140	2305
32	QUEENS COLLEGE	Quaide, W. L.	HD-SL	Takahashi, T.	NSG 7321	3273
32	RICE UNIVERSITY	Harris, J. W.	JSC	Ling, A. C.	NGL 44-006-127	3889
32	RICE UNIVERSITY	Quaide, W. L.	HD-SL	Clayton, D. D.	NSG 7361	3897
32	RICE UNIVERSITY	Quaide, W. L.	HD-SL	Debremaecker, J. C.	NSG 7362	3898
32	RICE UNIVERSITY	Quaide, W. L.	HD-ST	Freeman, J. W.	NSG 7157	3896
32	RUTGERS U-N BRUNSWK	Harris, J. W.	JSC	Klein, L. C.	NSG 9065	3113
32	RUTGERS U-N BRUNSWK	French, B. M.	HD-SL	Hewins, R. H.	NSG 7327	3111
32	RUTGERS U-N BRUNSWK	Boyce, J. M.	HD-SL	Zebib, A.	NSG 7601	3112
32	SAN DIEGO STATE UNIV	Blanchard, D. P.	JSC	Jiracek, G. R.	NAS 9-16143	1314
32	SOUTHERN METHODIST U	Blanchard, D. P.	JSC	Dungan, M. A.	NAS 9-16140	3900
32	SOUTHERN METHODIST U	Lofgren, G.	JSC	Dungan, M. A.	NGT 44-007-800	3901
32	STANFORD UNIVERSITY	Broderick, J.	GSFC	Lyon, R. J.	NAS 5-24232	1377
32	STANFORD UNIVERSITY	Broderick, J.	GSFC	Rich, E. I.	NAS 5-24479	1380
32	STANFORD UNIVERSITY	Boyce, J. M.	HD-SL	Howard, H. T.	NGR 05-020-649	1451
32	STANFORD UNIVERSITY	Boyce, J. M.	HD-SL	Levinthal, E.	NSG 7538	1474
32	STATE UNIV NY-ALBANY	Harper, E. L.	GSFC	Dewey, J. F.	NAG 5-24	3302
32	STATE UNIV NY-ALBANY	Frey, H. V.	GSFC	Burke, K.	NSG 5274	3313
32	STATE UNIV NY-ALBANY	Boyce, J. M.	HD-SL	Anderson, D. M.	NASW 3333	3309
32	STATE UNIV NY-BUFFAL	Boyce, J. M.	HD-SL	King, J. S.	NGR 33-015-108	3320
32	STATE U NY-STONY BRK	Cohen, S. C.	GSFC	Melosh, H. J.	NAG 5-7	3321
32	STATE U NY-STONY BRK	Harris, J. W.	JSC	Hartung, J. B.	NSG 9013	3346
32	STATE U NY-STONY BRK	French, B. M.	HD-SL	Schaeffer, O. A.	NAGW 25	3323
32	STATE U NY-STONY BRK	Quaide, W. L.	HD-SL	Melosh, H. J.	NAGW 50	3324
32	STATE U NY-STONY BRK	Dwornik, S. E.	HD-SL	Owen, T.	NSG 7553	3345
32	TEXAS A&M UNIVERSITY	Schmugge, T. J.	GSFC	Newton, R. W.	NAG 5-31	3907
32	TEXAS A&M UNIVERSITY	Harper, E. L.	GSFC	Jones, G. M.	NAG 5-94	3908
32	TEXAS A&M UNIVERSITY	Toll, D.	GSFC	Miller, L.	NAS 5-25846	3912
32	TEXAS A&M UNIVERSITY	Taylor, P. T.	GSFC	Jones, G. M.	NCC 5-11	3933
32	TEXAS A&M UNIVERSITY	Chang, A. T.	GSFC	Blanchard, B. J.	NSG 5134	3945
32	TEXAS A&M UNIVERSITY	Chang, A. T.	GSFC	Blanchard, B. J.	NSG 5156	3946
32	TEXAS A&M UNIVERSITY	Chahine, M.	JPL	McGrail, D. W.	NGT 44-001-801	3938
32	TEXAS A&M UNIVERSITY	MacDonald, R. B.	JSC	Guseman, L. F.	NAS 9-15964	3927
32	TEXAS A&M UNIVERSITY	Quaide, W. L.	HD-SL	Gangi, A. F.	NSG 7417	3950

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
32	TEXAS TECH UNIV	Halstead, T. W.	HD-SB	Hartman, H. B.	NSG 7435	3958
32	UNIV ALA-HUNTSVILLE	West, G. W.	MSFC	Hung, R. J.	NAS 8-33726	1059
32	UNIV ALASKA-FAIRBANKS	Duke, M. B.	JSC	Forbes, R. B.	NAG 9-8	1077
32	UNIV ALASKA-FAIRBANKS	Duke, M. B.	JSC	Benson, C. S.	NAG 9-9	1078
32	UNIV OF ARIZONA	Devincenzi, D. L.	HD-SB	Nagy, B.	NGR 03-002-171	1157
32	UNIV OF ARIZONA	Bohlin, J. M.	HD-SL	Strom, R. G.	NGL 03-002-191	1154
32	UNIV OF ARIZONA	Quaide, W. L.	HD-SL	Sonett, C. P.	NGR 03-002-370	1161
32	UNIV OF ARIZONA	French, B. M.	HD-SL	Wilkening, L. L.	NSG 7011	1172
32	UNIV OF ARIZONA	Quaide, W. L.	HD-SL	Sonett, C. P.	NSG 7020	1173
32	UNIV OF ARIZONA	Boyce, J. M.	HD-SL	Strom, R. G.	NSG 7146	1179
32	UNIV OF ARIZONA	French, B. M.	HD-SL	Zellner, B. H.	NSG 7249	1180
32	UNIV OF ARIZONA	Quaide, W. L.	HD-SL	Levy, E. H.	NSG 7419	1184
32	UNIV OF ARIZONA	French, B. M.	HD-SL	Boynton, W. V.	NSG 7436	1185
32	UNIV OF ARIZONA	Boyce, J. M.	HD-SL	Woronow, A.	NSG 7544	1188
32	UNIV OF ARIZONA	Quaide, W. L.	HD-SL	Drake, M. J.	NSG 7576	1192
32	UNIV OF ARIZONA	Quaide, W. L.	HD-SL	Drake, M. J.	NSG 7577	1193
32	UNIV OF ARIZONA	Quaide, W. L.	HD-SL	Lebofsky, I.	NSG 7607	1194
32	UNIV ARKANSAS-FAYETTE	Duke, M. B.	JSC	MacDonald, H. C.	NAG 9-3	1198
32	UNIV CALIF-BERKELEY	Wales, R. O.	GSFC	Anderson, K. A.	NAS 5-22307	1507
32	UNIV CALIF-BERKELEY	Young, R. S.	HD-SB	Calvin, M.	NGL 05-003-003	1533
32	UNIV CALIF-L ANGELES	Holweck, E. C.	GSFC	Kaula, W. M.	NSG 5263	1635
32	UNIV CALIF-L ANGELES	Corrigan, J. P.	GSFC	Siscoe, G. I.	NSG 5351	1637
32	UNIV CALIF-L ANGELES	Page, M. A.	MSFC	Coleman, P. J.	NAS 8-32571	1602
32	UNIV CALIF-L ANGELES	Murphy, J. P.	HD-ER	Knopoff, L.	NASW 3416	1606
32	UNIV CALIF-L ANGELES	Devincenzi, D. L.	HD-SB	Kaplan, I. R.	NGR 05-007-221	1616
32	UNIV CALIF-L ANGELES	Devincenzi, D. L.	HD-SB	Schopf, J. W.	NGR 05-007-407	1623
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Stevenson, D. J.	NAGW 41	1590
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Kaula, W. M.	NGL 05-007-002	1612
32	UNIV CALIF-L ANGELES	Boyce, J. M.	HD-SL	Schubert, G.	NGR 05-007-317	1619
32	UNIV CALIF-L ANGELES	French, B. M.	HD-SL	Wasson, J. T.	NGR 05-007-329	1621
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Coleman, P. J.	NGR 05-007-351	1622
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Christie, J. M.	NSG 7052	1640
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Kieffer, H. H.	NSG 7282	1643
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Schubert, G.	NSG 7315	1645
32	UNIV CALIF-L ANGELES	French, B. M.	HD-SL	Boynton, W. V.	NSG 7335	1646
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Busse, F. W.	NSG 7484	1649
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Kieffer, H. H.	NSG 7581	1651
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Kieffer, H. H.	NSG 7582	1652
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Shubert, G.	NSG 7583	1653
32	UNIV CALIF-L ANGELES	Schmerling, F. R.	HD-ST	Schopf, J. W.	NSG 7489	1650
32	UNIV CALIF-SAN DIEGO	Patterson, G. C.	GSFC	Berger, J.	NAG 5-11	1660
32	UNIV CALIF-SAN DIEGO	Devincenzi, D. L.	HD-SB	Miller, S. I.	NAGW 20	1667
32	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HD-SL	Arrhenius, G.	NGL 05-009-002	1687
32	UNIV CALIF-SAN DIEGO	French, B. M.	HD-SL	Arnold, J. R.	NGL 05-009-004	1688
32	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HD-SL	Arnold, J. R.	NGR 05-005-005	1693
32	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HD-SL	Arnold, J. R.	NSG 7027	1706
32	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HD-SL	Allven, H.	NSG 7102	1707
32	UNIV CALIF-SAN DIEGO	French, B. M.	HD-SL	MacDougall, J. D.	NSG 7121	1708
32	UNIV CALIF-S BARBARA	Chang, A.	GSFC	Fstes, J. F.	NCC 5-5	1750
32	UNIV CALIF-S BARBARA	Amsbury, D. L.	JSC	Strahler, A. H.	NAS 9-15509	1744
32	UNIV CALIF-S BARBARA	MacDonald, R. B.	JSC	Fstes, J. F.	NAS 9-16077	1745
32	UNIV CALIF-S BARBARA	Quaide, W. L.	HD-SL	Peale, S. J.	NGR 05-010-062	1751
32	UNIV CALIF-S BARBARA	Quaide, W. L.	HD-SL	Fuller, M. D.	NSG 7586	1756
32	UNIV OF CHICAGO	French, B. M.	HD-SL	Anders, F.	NGL 14-001-010	2220
32	UNIV OF CHICAGO	French, B. M.	HD-SL	Turkevich, A. L.	NGR 14-001-135	2226
32	UNIV OF CHICAGO	French, B. M.	HD-SL	Grossman, L.	NGR 14-001-249	2230
32	UNIV OF CHICAGO	Quaide, W. L.	HD-SL	Schramm, D. N.	NSG 7212	2236
32	UNIV OF CHICAGO	French, B. M.	HD-SL	Turkevich, A. L.	NSG 7532	2240

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32	UNIV OF CHICAGO	French, B. M.	HD-SL	Smith, J. V.	NSG 7550	2241
32	UNIV COLORADO-BOLDR	Harper, E. L.	GSFC	Whitcomb, J. H.	NAG 5-21	1851
32	UNIV COLORADO-BOLDR	Harper, E. L.	GSFC	Whitcomb, J. H.	NAG 5-22	1852
32	UNIV COLORADO-BOLDR	Stephanides, C. C.	GSFC	Smith, M. L.	NAS 5-25887	1869
32	UNIV COLORADO-BOLDR	Oseroff, H.	GSFC	Benton, E. R.	NAS 5-25957	1870
32	UNIV COLORADO-BOLDR	Flinn, E. A.	HD-SL	Smith, M. L.	NSG 7319	1890
32	UNIV COLORADO-BOLDR	Quaide, W. L.	HD-SL	Spetzler, H. A.	NSG 7584	1907
32	UNIV OF DAYTON	Quaide, W. L.	HD-SL	Piekutowski, A. J.	NSG 7444	3566
32	UNIV OF FLORIDA	Atwell, B. H.	NSTL	Cross, C.	NAS13-106	2059
32	UNIV OF GEORGIA	Butera, M. K.	NSTL	Cooley, J. L.	NAS13-121	2148
32	UNIV OF GEORGIA	Atwell, B. H.	NSTL	Welch, R.	NAS13-123	2149
32	UNIV OF GEORGIA	Atwell, B. H.	NSTL	Welch, R.	NAS13-157	2151
32	UNIV OF GEORGIA	Boyce, J. M.	HD-SL	Howard, J. H.	NGR 11-003-037	2152
32	UNIV OF GEORGIA	Quaide, W. L.	HD-SL	Wenner, D. B.	NSG 7433	2153
32	UNIV OF GEORGIA	Boyce, J. M.	HD-SL	Brook, G.	NSG 7539	2154
32	UNIV OF HAWAII-MANOA	White, W.	GSFC	Jefferies, J. T.	NGR 12-001-127	2169
32	UNIV OF HAWAII-MANOA	Nava, D. F.	GSFC	Philpotts, J. A.	NSG 5203	2171
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HD-SL	McCord, T. B.	NAGW 37	2156
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HD-SL	Hawke, B. R.	NAGW 42	2157
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HD-SL	McCord, T. B.	NSG 7312	2176
32	UNIV OF HAWAII-MANOA	Boyce, J. M.	HD-SL	Pilcher, C. B.	NSG 7403	2178
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HD-SL	Russ, G. P.	NSG 7423	2179
32	UNIV OF HAWAII-MANOA	Dwornik, S. F.	HD-SL	McCord, T. B.	NSG 7443	2180
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HD-SL	Gaffey, M. J.	NSG 7462	2181
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HD-SL	Gaffey, M. J.	NSG 7597	2184
32	UNIV HOUSTON-HOUSTON	Devincenzi, D. I.	HD-SB	Oro, J.	NGR 44-005-002	3964
32	UNIV HOUSTON-HOUSTON	Dwornik, S. F.	HD-SL	Smith, R. S.	NSG 7410	3971
32	UNIV HOUSTON-HOUSTON	Boyce, J. M.	HD-SL	Smith, R. S.	NSG 7551	3973
32	UNIV HOUSTON-HOUSTON	French, B. M.	HD-SL	King, E. A.	NSG 7617	3975
32	UNIV OF KANSAS	Chang, A. T.	GSFC	Ulaby, F. T.	NSG 5335	2418
32	UNIV OF KANSAS	Atwell, B. H.	NSTL	Martino, F. A.	NAS13-131	2399
32	UNIV MARYLAND-COL PK	Rango, A.	GSFC	McCuen, R. H.	NGR 21-002-399	2571
32	UNIV MARYLAND-COL PK	Salomonson, V. V.	GSFC	Ragan, R. M.	NSG 5017	2581
32	UNIV MARYLAND-COL PK	Schmugge, T. J.	GSFC	Witczak, M. W.	NSG 5137	2584
32	UNIV MARYLAND-COL PK	Lowman, P. D.	GSFC	Siegrist, H. G.	NSG 5423	2598
32	UNIV MARYLAND-COL PK	Quaide, W. L.	HD-SL	Adler, I.	NSG 7046	2600
32	UNIV MARYLAND-COL PK	Quaide, W. L.	HD-SL	Pai, S. I.	NSG 7365	2605
32	UNIV MARYLAND-COL PK	Quaide, W. L.	HD-SL	Tossell, J.	NSG 7482	2608
32	UNIV OF MASS-AMHERST	Harris, J. W.	JSC	Rhodes, J. M.	NSG 9069	2836
32	UNIV OF MASS-AMHERST	Quaide, W. L.	HD-SL	Huguenin, R. L.	NAGW 40	2825
32	UNIV OF MASS-AMHERST	Boyce, J. M.	HD-SL	McGill, G. F.	NGR 22-010-076	2831
32	UNIV OF MASS-AMHERST	Boyce, J. M.	HD-SL	Huguenin, R. L.	NSG 7405	2833
32	UNIV OF MASS-AMHERST	French, B. M.	HD-SL	Haggerty, S. E.	NSG 7549	2834
32	UNIV OF MASS-AMHERST	Dwornik, S. F.	HD-SL	Wise, D.	NSG 7571	2835
32	UNIV OF MIAMI	Oseroff, H.	GSFC	Harrison, C. G.	NAS 5-26201	2078
32	UNIV OF MIAMI	Quaide, W. L.	HD-SL	Brass, G. B.	NSG 7510	2090
32	UNIV MICH-ANN ARBOR	Carter, C. H.	HD-LU	Olson, C. E.	NGT 23-005-800	2905
32	UNIV MO-COLUMBIA	Joyce, A. T.	NSTL	Johannsen, C. J.	NAS13-140	2991
32	UNIV MO-ROLLA	Atwell, B. H.	NSTL	Barr, D. J.	NAS13-150	2995
32	UNIV MO-ST LOUIS	Quaide, W. L.	HD-SL	James, P. B.	NSG 7563	3001
32	UNIV NEW HAMP-DURHAM	Hedin, A. E.	HD-ST	Moore, T. E.	NAGW 52	3047
32	UNIV OF NEW MEXICO	Atwell, B. H.	NSTL	Morain, S. R.	NAS13-109	3135
32	UNIV OF NEW MEXICO	Dwornik, S. F.	HD-SL	Fiston, W. F.	NGL 32-004-011	3136
32	UNIV OF NEW MEXICO	French, B. M.	HD-SL	Keil, K.	NGL 32-004-064	3138
32	UNIV OF NEW MEXICO	Boyce, J. M.	HD-SL	Fiston, W. F.	NGR 32-004-062	3139
32	UNIV OKLAHOMA-NORMAN	Atwell, B. H.	NSTL	Harrington, J. A.	NAS13-122	3612
32	UNIV OKLAHOMA-NORMAN	Atwell, B. H.	NSTL	Unavailable	NAS13-156	3613
32	UNIV OREGON-EUGENE	Quaide, W. L.	HD-SL	Weill, D. F.	NGR 38-003-020	3637

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32	UNIV OF PITTSBURGH	Thomas, H. H.	GSFC	Isdiak, E. G.	NSG 5270	3769
32	UNIV OF PITTSBURGH	Quaide, W. L.	HD-SL	Cassidy, W. A.	NGL 39-011-085	3763
32	UNIV OF PITTSBURGH	Quaide, W. L.	HD-SL	Hapke, B.	NSG 7631	3773
32	UNIV OF RHODE ISLAND	Boyce, J. M.	HD-SL	Boothroyd, J. C.	NSG 7414	3790
32	UNIV OF SANTA CLARA	Quaide, W. L.	HD-SL	Aggarwal, H. R.	NSG 7330	1785
32	UNIV SO CAROLINA-COL	Dalton, J.	GSFC	Cowen, D. J.	NAS13-144	3803
32	UNIV OF SOUTHERN CAL	Quaide, W. L.	HD-SL	Sammis, C. G.	NAGW 43	1788
32	UNIV OF SOUTHERN CAL	French, B. M.	HD-SL	Huth, G. C.	NSG 7535	1808
32	UNIV TENNESSEE-KNOXV	Williams, R.	JSC	Taylor, L. A.	NGT 43-001-800	3841
32	UNIV TENNESSEE-KNOXV	French, B. M.	HD-SL	McSween, H. Y.	NSG 7413	3846
32	UNIV TEXAS-AUSTIN	Stephanides, C. C.	GSFC	Shelus, P. J.	NAS 5-25898	3989
32	UNIV TEXAS-AUSTIN	White, W.	GSFC	Silverberg, E. C.	NGR 44-012-165	4010
32	UNIV TEXAS-AUSTIN	Kolenkiewicz, R.	GSFC	Tapley, B. D.	NGR 44-012-283	4012
32	UNIV TEXAS-AUSTIN	Blanchard, D. P.	JSC	Muehlberger, W. R.	NAG 9-11	3985
32	UNIV TEXAS-AUSTIN	Harris, J. W.	JSC	Gose, W. A.	NSG 9021	4036
32	UNIV TEXAS-AUSTIN	Dwornik, S. E.	HD-SL	Muehlberger, W. R.	NSG 7363	4030
32	UNIV TEXAS-AUSTIN	Quaide, W. L.	HD-SL	Smoluchowski, R.	NSG 7505	4034
32	UNIV TEXAS-AUSTIN	Boyce, J. M.	HD-SL	Baker, V.	NSG 7557	4035
32	UNIV TEXAS-DALLAS	Oseroff, H.	GSFC	Klumpar, D. M.	NAS 5-26309	4049
32	UNIV TEXAS-EL PASO	Blanchard, D. P.	JSC	Keller, G. R.	NAS 9-16142	4064
32	U TEX MED BRANCH-GAL	Stephanides, C. C.	GSFC	Dorman, H. J.	NAS 5-25897	4070
32	U TEX MED BRANCH-GAL	Quaide, W. L.	HD-SL	Makamura, Y.	NSG 7418	4073
32	U VERMONT & ST AGR C	Vitale, J. A.	HD-ET	John, H. H.	NSG 7453	4114
32	UNIV OF VIRGINIA	Dwornik, S. E.	HD-SL	Howard, A.	NGR 47-005-172	4225
32	UNIV OF VIRGINIA	Boyce, J. M.	HD-SL	Howard, A.	NSG 7572	4235
32	UNIV OF WASHINGTON	Harris, J. W.	JSC	Adams, J. B.	NSG 9032	4349
32	UNIV OF WASHINGTON	Vitale, J. A.	HD-ET	Adams, J. B.	NAGW 85	4312
32	UNIV OF WASHINGTON	Quaide, W. L.	HD-SL	Adams, J. B.	NSG 7173	4344
32	UNIV OF WASHINGTON	Quaide, W. L.	HD-SL	McCallum, I. S.	NSG 7313	4345
32	UNIV OF WASHINGTON	Quaide, W. L.	HD-SL	Adams, J. B.	NSG 7448	4347
32	UNIV WISC-MADISON	Oseroff, H.	GSFC	Bentley, C. R.	NAS 5-25977	4382
32	UNIV WISC-MADISON	Quaide, W. L.	HD-SL	Taylor, J. W.	NSG 7215	4408
32	UTAH STATE UNIV	Young, R. S.	HD-SB	Smith, G. G.	NSG 7038	4107
32	VA MILITARY INSTITUT	Quaide, W. L.	HD-SL	Schrieber, H. D.	NSG 7355	4238
32	VIRGINIA POLY INST	Costes, N. C.	MSFC	Storre, S.	NAS 8-33449	4262
32	WASHINGTON UNIVERSITY	Harris, J. W.	JSC	Haskin, L. A.	NSG 9055	3019
32	WASHINGTON UNIVERSITY	Quaide, W. L.	HD-SL	Hohenberg, C. M.	NSG 7016	3013
32	WASHINGTON UNIVERSITY	Boyce, J. M.	HD-SL	Arvidson, R. E.	NSG 7087	3014
32	WASHINGTON UNIVERSITY	Boyce, J. M.	HD-SL	Arvidson, R. E.	NSG 7545	3017
32	WASHINGTON UNIVERSITY	Quaide, W. L.	HD-SL	Goettal, K. A.	NSG 7578	3018
32	WOODSHOLE OCEAN INST	Patterson, G. C.	GSFC	Brown, C.	NAG 5-18	2841
33	CITY COLLEGE OF N Y	Schroeder, L. C.	LARC	Pierson, W. J.	NAS 1-15669	3147
33	HARVARD UNIVERSITY	Halem, M.	GSFC	Robinson, A. R.	NSG 5228	2667
33	HARVARD UNIVERSITY	Toth, R. A.	HD-EB	McElroy, M. B.	NASW 2952	2651
33	JOHNS HOPKINS UNIV	Huang, N. E.	WFC	Phillips, O. M.	NAS 6-2888	2487
33	JOHNS HOPKINS UNIV	Huang, N. E.	WFC	Phillips, O. M.	NAS 6-2993	2488
33	LA ST U&A&M COL-BRGE	Caharne, M.	JPL	Rouse, L. J.	NGT 19-001-800	2451
33	MASS INST OF TECH	Halem, M.	GSFC	Wunsch, C. I.	NGT 22-009-900	2768
33	NO CAROLINA STATE U	Huang, N. E.	WFC	Tung, C.	NAS 6-3018	3383
33	SAN JOSE STATE UNIV	Wngley, R. C.	ARC	Broenkow, W. W.	NSG 2239	1353
33	TEXAS A&M UNIVERSITY	Huang, N. E.	WFC	Ichiye, T.	NAS 6-2884	3914
33	UNIV CALIF-BERKELEY	Kim, H. H.	GSFC	Colwell, R. N.	NSG 5256	1552
33	UNIV CALIF-SAN DIEGO	Nelsen, D.	GSFC	Austin, R. W.	NAS 5-25450	1675
33	UNIV CALIF-SAN DIEGO	Nelsen, D.	GSFC	Austin, R. W.	NAS 5-26249	1676
33	UNIV CALIF-SAN DIEGO	Whitlock, C. H.	LARC	Smith, R. C.	NSG 1641	1698
33	UNIV OF KANSAS	Schroeder, L. C.	LARC	Moore, R. K.	NSG 1397	2407
33	UNIV MD-EASTRN SHORE	Huang, N. E.	WFC	Dudis, J. J.	NSG 6025	2615
33	UNIV OF MIAMI	McClain, C. R.	GSFC	Williams, F.	NSG 5344	2089

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
33	UNIV OF RHODE ISLAND	Campbell, J. W.	LARC	Spaulding, M. L.	NSG 1495	3789
33	UNIV OF WASHINGTON	Huang, N. E.	WFC	Katsaros, K. B.	NAS 6-2996	4317
33	WEST CHESTER ST COL	Hoge, F. E.	WFC	Yungel, J.	NAS 6-3096	3776
33	WOODSHOLE OCEAN INST	Halem, M.	GSFC	Haidvogel, D. B.	NAG 5-8	2840
33	WOODSHOLE OCEAN INST	Croswell, W. F.	LARC	Joyce, T. M.	NAG 1-91	2839
39	ALABAMA A&M UNIV	Smith, A. D.	MSFC	Montgomery, O. L.	NAG 8-1	1000
39	ALABAMA A&M UNIV	Downs, S. W., Jr.	MSFC	Montgomery, O. L.	NSG 8062	1006
39	ALABAMA A&M UNIV	Smith, A. D.	MSFC	Montgomery, O. L.	NSG 8066	1009
39	BOSTON COLLEGE	Taylor, W. W.	HD-ST	Eather, R. H.	NSG 7385	2620
39	BOSTON COLLEGE	Tomayko, D. W.	HD-ST	Carovillano, R. L.	NSG 7468	2621
39	CAL POLY ST U-S LUIS	Peterson, D. L.	ARC	Pillsbury, N.	NCA 2-678001	1278
39	CITY COLLEGE OF N Y	Hess, R. V.	LARC	Tchen, C. M.	NSG 1485	3151
39	COLORADO STATE UNIV	Nelsen, E. D.	GSFC	Vonderhaar, T. H.	NAS 5-22959	1823
39	COLORADO STATE UNIV	Toll, D.	GSFC	Maxwell, E.	NAS 5-25696	1824
39	CORNELL UNIVERSITY	Wydeven, T.	ARC	Shuler, M. L.	NSG 2408	3225
39	CORNELL UNIVERSITY	Vitale, J. A.	HD-ET	Liang, T.	NGL 33-010-171	3211
39	DARTMOUTH COLLEGE	Ongar, S. G.	GSFC	Stoiber, R. E.	NSG 5014	3043
39	DARTMOUTH COLLEGE	King, J. H.	HD-ST	Sonnerup, B.	NSG 7292	3046
39	FORT VALLEY STATE C	Wolverton, B. C.	NSTL	Brown, N. B., Jr.	NSG 735	2098
39	GEORGIA INST OF TECH	Slajna, E. F.	GSFC	Cunnold, D. M.	NAS 5-25817	2116
39	HAMPTON INSTITUTE	Poole, L. R.	LARC	Venable, D. D.	NCC 1-11	4148
39	HOWARD UNIVERSITY	Okeefe, J.	GSFC	Thorpe, A. M.	NAS 5-25185	2004
39	HUMBOLDT STATE UNIV	Norman, S. M.	ARC	Fox, L.	NSG 2341	1311
39	JACKSON STATE UNIV	Wolverton, B. C.	NSTL	Shores, F.	NSG 8026	2962
39	LA ST U&A&M COL-BRGF	Vitale, J. A.	HD-ET	Whitehurst, C. A.	NGL 19-001-105	2450
39	MASS INST OF TECH	Argentiero, P. D.	GSFC	Oppenheim, A. V.	NAG 5-2	2698
39	MASS INST OF TECH	Shiue, J. C.	GSFC	Staelin, D. H.	NAS 5-26038	2728
39	MICHIGAN STATE UNIV	Vitale, J. A.	HD-ET	Boylan, M. G.	NGL 23-004-083	2849
39	MISSISSIPPI STATE U	Vitale, J. A.	HD-ET	Miller, W. F.	NGL 25-001-054	2972
39	MONTANA STATE UNIV	Ravet, F. W.	JSC	Caprio, J. M.	NAS 9-16007	3021
39	MORGAN STATE UNIV	Tucker, C. J.	GSFC	Fan, C. J.	NAG 5-12	2509
39	NEW MEX ST U-LAS CR	Fenner, R. G.	JSC	Carver, K.	NAS 9-95497	3129
39	OLD DOMINION UNIV	Reichle, H. G.	LARC	Kindle, E. C.	NCC 1-34	4171
39	OLD DOMINION UNIV	Browell, E. V.	LARC	Kindle, E. C.	NSG 1477	4188
39	OREGON STATE UNIV	Mueller, J.	GSFC	Zaneveld, R. V.	NAS 5-23738	3625
39	OREGON STATE UNIV	Vitale, J. A.	HD-ET	Schrumpf, B. J.	NGL 38-002-053	3629
39	PAN AMERICAN UNIV	Heydorn, R. P.	JSC	Lemaster, E. W.	NSG 9033	3867
39	PENN STATE U-UNIV PK	Alford, W.	GSFC	McMurtry, G. J.	NAS 5-23859	3697
39	PENN STATE U-UNIV PK	Irons, J.	GSFC	Petersen, G. W.	NAS 5-25667	3699
39	PENN STATE U-UNIV PK	Labovitz, M.	GSFC	Smith, C. B.	NAS 5-25996	3701
39	PRAIRIE VIEW A&M U	Browne, I. D.	JSC	Brams, E. A.	NSG 9006	3870
39	PURDUE UNIVERSITY	Joosten, R. E.	JSC	Mroczynski, R.	NAS 9-15325	2299
39	PURDUE UNIVERSITY	Erickson, J. D.	JSC	Bauer, M. E.	NAS 9-15466	2300
39	PURDUE UNIVERSITY	Amsbury, D. L.	JSC	Hoffer, R. M.	NAS 9-15508	2301
39	PURDUE UNIVERSITY	Vitale, J. A.	HD-ET	Weismiller, R. A.	NGL 15-005-186	2306
39	SAN JOSE STATE UNIV	Nishioka, K.	ARC	Ling, A. C.	NSG 2305	1354
39	SAN JOSE STATE UNIV	Johnson, R. D.	ARC	Funk, G. A.	NSG 2398	1357
39	SO DAKOTA STATE UNIV	Schmugge, T. J.	GSFC	Heilman, J. L.	NSG 5396	3811
39	SO DAKOTA STATE UNIV	Vitale, J. A.	HD-ET	Myers, V. I.	NGL 42-003-007	3810
39	STANFORD UNIVERSITY	Roberson, F.	HD-ET	Dunn, D.	NASW 3204	1395
39	STATE UNIV NY-ALBANY	Weinberg, I.	LERC	Corbett, J. W.	NSG 3095	3311
39	STATE UNIV NY-ALBANY	Vaughn, O. H., Jr	MSFC	Yonnegut, B.	NAS 8-32893	3303
39	ST U NY COL-ONEONTA	Austin, T. W.	GSFC	Baumann, P. R.	NAS 5-25967	3351
39	TEXAS A&M UNIVERSITY	Williams, D. L.	GSFC	Miller, L.	NAS 5-25941	3913
39	TEXAS A&M UNIVERSITY	Schmugge, T. J.	GSFC	Miller, L.	NCC 5-15	3934
39	TEXAS A&M UNIVERSITY	Wang, J. R.	GSFC	Newton, R. W.	NSG 5266	3948
39	TEXAS A&M UNIVERSITY	Blanchard, D. P.	JSC	Randall, J. D.	NAS 9-14828	3923
39	TEXAS A&M UNIVERSITY	Vitale, J. A.	HD-ET	Blanchard, B. J.	NGL 44-001-001	3935

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39	UNIV ALA-HUNTSVILLE	West, G. S.	MSFC	Hung, R. J.	NAS 8-31171	1044
39	UNIV ALA-HUNTSVILLE	Rutland, C. M.	MSFC	Proffitt, S.	NAS 8-33889	1061
39	UNIV ALASKA-FAIRBNKS	Johnson, R. D.	ARC	Stringer, W.	NCA 2-20001	1071
39	UNIV ALASKA-FAIRBNKS	Wilson, D. E.	ARC	Jean, K. G.	NCA 2-20002	10
39	UNIV ALASKA-FAIRBNKS	Vitale, J. A.	HD-ET	Miller, J. M.	NGL 02-001-092	1083
39	UNIV OF ARIZONA	Vitale, J. A.	HD-ET	Johnson, J. D.	NGL 03-002-313	1155
39	UNIV ARKANSAS-FAYETV	Rango, A.	GSFC	Waite, W. P.	NAG 5-20	1197
39	UNIV CALIF-BERKELEY	Toon, O. B.	ARC	Granger, O.	NCA 2-50004	1526
39	UNIV CALIF-BERKELEY	Linlor, W. I.	ARC	Angelakos, D.	NCA 2-50006	1527
39	UNIV CALIF-BERKELEY	Brown, D.	JSC	Colwell, R. N.	NAS 9-14565	1522
39	UNIV CALIF-BERKELEY	Hancock, K. J.	JSC	Wensel, L. C.	NAS 9-15987	1523
39	UNIV CALIF-BERKELEY	Vitale, J. A.	HD-ET	Colwell, R. N.	NGL 05-003-404	1536
39	UNIV CALIF-BERKELEY	Vitale, J. A.	HD-ET	Colwell, R. N.	NSG 7220	1558
39	UNIV CALIF-BERKELEY	Quaide, W. L.	HD-SL	Anderson, K. A.	NSG 7127	1555
39	UNIV CALIF-DAVIS	Rango, A.	GSFC	Algazi, V. R.	NSG 5092	1576
39	UNIV CALIF-L ANGELES	Hedin, A. E.	HD-ST	Coleman, P. J.	NGL 05-007-004	1613
39	UNIV CALIF-SAN DIEGO	Smith, D. E.	GSFC	Berger, J.	NGR 05-009-246	1697
39	UNIV CALIF-SAN DIEGO	Purvis, C. K.	LERC	Whipple, E. C., Jr.	NSG 3150	1700
39	UNIV CALIF-S BARBARA	Norman, S.	ARC	Clayton, C.	NAG 2-20	1740
39	UNIV CALIF-S BARBARA	Norman, S.	ARC	Estes, J. E.	NAG 2-24	1741
39	UNIV CALIF-S BARBARA	Peterson, D.	ARC	Strahler, A. H.	NSG 2377	1753
39	UNIV CALIF-S BARBARA	Rango, A.	GSFC	Dozier, J.	NSG 5262	1755
39	UNIV CALIF-S BARBARA	Graybeal, G. E.	JSC	Strahler, A. H.	NGT 05-010-800	1752
39	UNIV OF CENTRAL FLA	Rudolph, H. W.	KSC	Madsen, B. C.	NAS10-9841	2045
39	UNIV COLORADO-BOLDR	Jones, C. T.	MSFC	Toomre, J.	NAS 8-31958	1874
39	UNIV COLORADO-BOLDR	Vitale, J. A.	HD-ET	Ives, J. D.	NGL 06-003-200	1881
39	UNIV DC-HARVARD GA	Ruitberg, A. P.	GSFC	Lessin, I.	NGR 09-053-003	2019
39	UNIV DC-MT VERNON SQ	Gross, F. C.	GSFC	Phelps, H. L.	NGR 09-050-019	2021
39	UNIV OF DELAWARE	Gervin, J. C.	GSFC	Klemas, V.	NAS 5-25934	1948
39	UNIV OF DELAWARE	Gervin, J. C.	GSFC	Klemas, V.	NAS 5-26254	1949
39	UNIV OF DENVER	Orr, H. D.	LARC	Murcay, D. G.	NSG 1432	1921
39	UNIV OF FLORIDA	Horn, F. W.	KSC	Martsoff, J. D.	NAS10-8920	2053
39	UNIV OF FLORIDA	Horn, F. W.	KSC	Martsoff, J. D.	NAS10-9168	2054
39	UNIV OF FLORIDA	Horn, F. W.	KSC	Blazquez, C. H.	NAS10-9666	2056
39	UNIV OF FLORIDA	Vitale, J. A.	HD-ET	Ruth, B. E.	NSG 7236	2074
39	UNIV OF GEORGIA	Butera, M. K.	NSTL	Cooley, J. L.	NAS13-137	2150
39	UNIV OF IOWA	Fishman, J.	LARC	Ragg, M. B.	NAG 1-36	2351
39	UNIV OF KANSAS	Rango, A.	GSFC	Ulab, F. T.	NAG 5-30	2391
39	UNIV OF KANSAS	Vitale, J. A.	HD-ET	Barr, B. G.	NGL 17-004-024	2404
39	UNIV MARYLAND-COL PK	Rango, A.	GSFC	Ragan, R. M.	NAG 5-9	2521
39	UNIV MARYLAND-COL PK	Trombka, J. I.	GSFC	Sommer, S. E.	NAS 5-23457	2538
39	UNIV MARYLAND-COL PK	Vitale, J. A.	HD-ET	Ragan, R. M.	NAGW 33	2533
39	UNIV MD-EASTRN SHORE	Trafford, G. H.	WFC	Gupta, G. C.	NSG 6034	2617
39	UNIV MICH-ANN ARBOR	Ruff, R. C.	MSFC	Shyn, T. W.	NAS 8-32661	2894
39	U MINN-MNPLS-ST PAUL	Vitale, J. A.	HD-ET	Hobbie, R. K.	NGL 24-005-263	2944
39	U MINN-MNPLS-ST PAUL	King, J. H.	HD-ST	Winckler, J. R.	NSG 7005	2954
39	UNIV MO-COLUMBIA	Schmugge, T. J.	GSFC	Rouse, J. W.	NSG 5338	2992
39	UNIV MO-COLUMBIA	Harnage, M. J.	JSC	Rouse, J. W.	NAS 9-15896	2990
39	UNIV MO-COLUMBIA	Vitale, J. A.	HD-ET	Johannsen, C. J.	NAGW 46	2986
39	UNIV NEBRASKA-LINCLN	Thompson, D.	JSC	Blad, B. L.	NGT 28-004-800	3026
39	UNIV NEBRASKA-LINCLN	Vitale, J. A.	HD-ET	Carlson, M. P.	NGL 28-004-020	3024
39	UNIV OF PENNSYLVANIA	Barnes, C. M.	JSC	Shen, B. S.	NAS 9-15789	3748
39	UNIV SO CAROLINA-COL	Vitale, J. A.	HD-ET	Jankowski, M. D.	NSG 7504	3805
39	UNIV SO MISSISSIPPI	Wolverton, B. C.	NSTL	Stocks, P. K.	NAS13-81	2982
39	UNIV TENNESSEE-KNOXV	Anderson, B. J.	MSFC	Carter, J. M.	NAS 8-32611	3870
39	UNIV OF UTAH	Vitale, J. A.	HD-ET	Ursenbach, W. O.	NAGW 95	4085
39	UNIV OF UTAH	Vitale, J. A.	HD-ET	Ridd, M. K.	NSG 7226	4094
39	UNIV OF WASHINGTON	Wilson, D. E.	ARC	Shinn, R. D.	NCA 2-850001	4324

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39	UNIV OF WASHINGTON	Wilson, D. E.	ARC	Westerlund, F. V.	NCA 2-850002	4325
39	UNIV WISC-MADISON	Middleton, E.	GSFC	Scarpice, F. L.	NAS 5-25505	4380
39	UNIV WISC-MADISON	Thiele, O. W.	GSFC	Suomi, V. E.	NAS 5-26345	4386
39	UNIV WISC-MADISON	Vitale, J. A.	HD-ET	Clapp, J. L.	NGL 50-002-127	4393
39	VIRGINIA POLY INST	Gervin, J. C.	GSFC	Munday, J.	NAS 5-26199	4259
39	VIRGINIA POLY INST	Tenney, D. R.	LARC	Unnam, J.	NCC 1-10	4265
39	WASHINGTON ST UNIV	Wilson, D. E.	ARC	Krebs, L. T.	NCA 2-840001	4352
39	WASHINGTON UNIVERSITY	Weinstein, R. H.	HD-ET	Eastwood, L. F.	NAS 3331	3007
39	XAVIER UNIV-LA	Espy, P. N.	MSFC	Ioup, J.	NSG 8050	2469
41	ARIZONA STATE UNIV	Hippensteele, S. A.	LERC	Metzger, D. E.	NSG 3075	1103
41	BOSTON UNIVERSITY	Yates, E. C.	LARC	Morino, L.	NGR 22-004-030	2625
41	BOSTON UNIVERSITY	Yates, E. C.	LARC	Morino, L.	NGT 22-004-800	2626
41	BOSTON UNIVERSITY	Yates, E. C.	LARC	Morino, L.	NGT 22-004-801	2627
41	BOSTON UNIVERSITY	Yates, E. C.	LARC	Morino, L.	NGT 22-004-802	2628
41	BROWN UNIVERSITY	Yates, E. C.	LARC	Doepfner, T. W., Jr.	NGT 40-002-800	3783
41	BROWN UNIVERSITY	Townsend, J. C.	LARC	Sirovich, L.	NSG 1617	3784
41	CALIF INST OF TECH	Starnes, H. H., Jr.	LARC	Knauss, W. G.	NSG 1483	1248
41	CALIF INST OF TECH	Szamislo, A. J.	LERC	Marble, F. E.	NAG 3-70	203
41	CAL POLY ST U-S LUIS	Talbot, P. D.	ARC	Sandlin, D. R.	NAG 2-61	1275
41	CAL POLY ST U-S LUIS	Magee, J. P.	ARC	Grimes, J. E.	NAS 2-10364	1277
41	CAL POLY ST U-S LUIS	Koenig, D. G.	ARC	Hoffmann, J. A.	NSG 2391	1280
41	CAL POLY ST U-S LUIS	Myers, L. P.	DFRC	Carpenter, T. W.	NAG 4-4	1276
41	CAL POLY ST U-S LUIS	Kordes, E. E.	DFRC	Sandlin, D. R.	NCC 4-1	1279
41	CAL POLY ST U-S LUIS	Ayers, T. G.	DFRC	Sandlin, D. R.	NSG 4014	1281
41	CAL POLY ST U-S LUIS	Gee, S. W.	DFRC	Sandlin, D. R.	NSG 4020	1282
41	CAL POLY ST U-S LUIS	Gee, S. W.	DFRC	Sandlin, D. R.	NSG 4022	1283
41	CAL ST POLY U-POMONA	Christianson, R. S.	ARC	Lord, P. A.	NAG 2-49	1284
41	CASE WESTERN RESERVE	Hingst, W. R.	LERC	Greber, I.	NAG 3-61	3410
41	CASE WESTERN RESERVE	Hingst, W. R.	LERC	Greber, I.	NAG 3-102	34
41	CASE WESTERN RESERVE	Sockol, P. M.	LERC	Reshotko, E.	NCC 3-4	34
41	CASE WESTERN RESERVE	Bishop, A. R.	LERC	Reshotko, E.	NGR 36-027-064	34
41	CASE WESTERN RESERVE	Anderson, B. H.	LERC	Lynch, W. C.	NSG 3115	34
41	CASE WESTERN RESERVE	Riddlebaugh, S. M.	LERC	Greber, I.	NSG 3206	344
41	CASE WESTERN RESERVE	Anderson, B. H.	LERC	Parke, F. I.	NSG 3207	3445
41	CASE WESTERN RESERVE	Hingst, W. R.	LERC	Greber, I.	NSG 3211	3446
41	CASE WESTERN RESERVE	Hingst, W. R.	LERC	Greber, I.	NSG 3271	3454
41	CLEMSON UNIV-CLEMSON	Doggett, R. V., Jr.	LARC	Rudisill, C. S.	NSG 1411	3796
41	COLORADO STATE UNIV	Sockol, P. M.	LERC	Sadeh, W. Z.	NSG 3127	1838
41	COLUMBIA UNIVERSITY	Harris, R. L., Sr.	LARC	Galanter, E.	NCC 1-5	3176
41	COLUMBIA UNIVERSITY	Mixson, J. S.	LARC	Vaicaitis, R.	NSG 1450	3182
41	CORNELL UNIVERSITY	Tauber, M. E.	ARC	Caughy, D. A.	NAG 2-13	3196
41	CORNELL UNIVERSITY	Chapman, G. T.	ARC	Lumley, J. L.	NSG 2382	3223
41	CORNELL UNIVERSITY	Johnson, G. M.	LERC	Caughy, D. A.	NAG 3-19	3197
41	CORNELL UNIVERSITY	Marek, C. J.	LERC	Gouldin, F. C.	NSG 3019	3227
41	DREXEL UNIVERSITY	Price, D. B.	LARC	Calise, A. J.	NSG 1496	3661
41	DREXEL UNIVERSITY	Lyons, V. J.	LERC	Cernansky, N. P.	NAG 3-1	3652
41	EMBRY-RIDDLE AERO U	Houck, J. A.	LARC	Grandelman, J.	NAS 1-15724	2028
41	EMBRY-RIDDLE AERO U	Aaron, J. B.	WFC	Grandelman, J.	NAS 6-3040	2029
41	GEORGE WASHINGTON U	Chapman, G. T.	ARC	Hafez, M. M.	NAG 2-40	1966
41	GEORGE WASHINGTON U	Demaris, R. N.	LARC	Liebowitz, H.	NAG 1-13	1965
41	GEORGE WASHINGTON U	Duberg, J. E.	LARC	Liebowitz, H.	NAS 1-14605	1968
41	GEORGE WASHINGTON U	Lansing, D. L.	LARC	Liebowitz, H.	NCC 1-14	1972
41	GEORGE WASHINGTON U	Whitehead, A. H.	LARC	Liebowitz, H.	NCC 1-24	1974
41	GEORGE WASHINGTON U	Erickson, W. D.	LARC	Liebowitz, H.	NCC 1-27	1975
41	GEORGE WASHINGTON U	Suit, W. T.	LARC	Liebowitz, H.	NCC 1-29	1976
41	GEORGE WASHINGTON U	Erickson, W. D.	LARC	Liebowitz, H.	NCC 1-44	1979
41	GEORGE WASHINGTON U	Bobbitt, P. J.	LARC	Liebowitz, H.	NGR 09-010-074	1980
41	GEORGE WASHINGTON U	McComb, H. G.	LARC	Liebowitz, H.	NGR 09-010-078	1981

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41	GEORGE WASHINGTON U	Morgan, H. G.	LARC	Liebowitz, H.	NGR 09-010-085	1982
41	GEORGE WASHINGTON U	Kemp, W. B., Jr.	LARC	Liebowitz, H.	NSG 1585	1988
41	GEORGIA INST OF TECH	Scheiman, J.	LARC	McMahon, H. M.	NAG 1-40	2100
41	GEORGIA INST OF TECH	Young, W. H., Jr.	LARC	Gray, R. B.	NAS 1-15158	2109
41	GEORGIA INST OF TECH	Berry, J. D.	LARC	Pierce, G. A.	NAS 1-16222	2111
41	GEORGIA INST OF TECH	Lee, B. L.	LARC	Pierce, G. A.	NSG 1592	2129
41	GEORGIA INST OF TECH	Saule, A. V.	LERC	Zinn, B. T.	NAG 3-67	2105
41	GEORGIA INST OF TECH	Phillips, B. R.	LERC	Zinn, B. T.	NAG 3-96	2107
41	GEORGIA INST OF TECH	Baumeister, K. J.	LERC	Zinn, B. T.	NSG 3036	2135
41	GEORGIA INST OF TECH	Sockol, P. M.	LERC	Johnston, W. A.	NSG 3260	2138
41	GEORGIA INST OF TECH	McFarland, E. R.	LERC	Wu, J.	NSG 3307	2140
41	HAMPTON INSTITUTE	Shanks, R. E.	LARC	Wiggs, J. F.	NAG 1-69	4141
41	HAMPTON INSTITUTE	Knox, C. E.	LARC	Hargrove, A.	NAS 1-15445	4144
41	HAMPTON INSTITUTE	Beckwith, I. E.	LARC	Anyiwo, J. C.	NAS 1-15877	4145
41	HAMPTON INSTITUTE	Jewel, J. W.	LARC	Unavailable	NAS 1-16005	4146
41	HARVARD UNIVERSITY	Brown, T. J.	ARC	Caines, P. F.	NCC 2-39	2653
41	HARVARD UNIVERSITY	Doolin, B. F.	ARC	Byrnes, C. I.	NSG 2265	2663
41	HARVEY MUDD COLLEGE	Luebs, A. B.	ARC	Williams, H.	NCA 2-283801	1307
41	HARVEY MUDD COLLEGE	Bull, J. G.	ARC	Clary, G. R.	NCC 2-90	1308
41	HOWARD UNIVERSITY	Barrowman, J. S.	GSFC	Fan, D.	NAS 5-24242	2002
41	ILL INST OF TECH	Starnes, J. H., Jr.	LARC	Hafka, R. T.	NAG 1-5	2188
41	ILL INST OF TECH	Harvey, W. D.	LARC	Tan-atchat, J.	NAG 1-74	2189
41	ILL INST OF TECH	Adelman, H. M.	LARC	Hafka, R. T.	NSG 1266	2190
41	ILL INST OF TECH	Hefner, J. N.	LARC	Nagio, H. M.	NSG 1591	2191
41	ILL INST OF TECH	Groeneweg, J. F.	LERC	Nagib, H. M.	NSG 3220	2192
41	INDIANA INST OF TECH	Stockman, N. O.	LERC	Boles, M. A.	NAG 3-4	2272
41	IND U-PURDUE-INDAPLS	Sockol, P. M.	LERC	Bodonyi, R. J.	NSG 3183	2286
41	IND U-PURDUE-INDAPLS	Chima, R.	LERC	Feet, A.	NSG 3294	2287
41	IOWA STATE UNIV	Olson, L. E.	ARC	James, W. D.	NAG 2-30	2330
41	IOWA STATE UNIV	Corsiglia, V. R.	ARC	Vogel, J. M.	NCC 2-19	2340
41	IOWA STATE UNIV	Corsiglia, V. R.	ARC	Nogel, J.	NCC 2-22	2341
41	IOWA STATE UNIV	Pakich, J. U.	ARC	Tannehill, J. C.	NGR 16-002-038	2342
41	IOWA STATE UNIV	Malcolm, G. N.	ARC	James, W. D.	NSG 2091	2349
41	IOWA STATE UNIV	Salas, M. D.	LARC	Anderson, D. A.	NCC 1-17	2339
41	IOWA STATE UNIV	Morris, D. J.	LARC	Iversen, J. D.	NSG 1582	2347
41	IOWA STATE UNIV	Graves, R. A.	HD-RT	Anderson, D. A.	NGT 16-002-801	2344
41	ISRAEL INST OF TECH	Abel, I.	LARC	Nissim, F.	NSG 7373	4429
41	JOHNS HOPKINS UNIV	Rubesin, M. W.	ARC	Corrsin, S.	NSG 2303	2501
41	JOHNS HOPKINS UNIV	Goldt, E. A.	GSFC	Davidson, A. F.	NGT 21-001-800	2498
41	LEHIGH UNIVERSITY	Batterton, P. G.	LERC	Rockwell, D. O.	NSG 3162	3681
41	MASS INST OF TECH	Dizial, R. A.	ARC	Miller, R. H.	NAG 2-47	2692
41	MASS INST OF TECH	Nagel, D. C.	ARC	Simpson, R. W.	NAS 2-10720	2714
41	MASS INST OF TECH	Johnson, W. R.	ARC	Widhall, S. I.	NSG 2142	2778
41	MASS INST OF TECH	Johnson, W. R.	ARC	Ham, N. D.	NSG 2266	2780
41	MASS INST OF TECH	Nelsen, F. D.	GSFC	Cunnold, D. M.	NAS 5-22915	2718
41	MASS INST OF TECH	Gloersen, P.	GSFC	Staelin, D. H.	NAS 5-22929	2719
41	MASS INST OF TECH	Bland, S. R.	LARC	Harris, W. I.	NAG 1-60	2687
41	MASS INST OF TECH	Hubbard, H. H.	LARC	Ingard, K. V.	NAS 1-15154	2710
41	MASS INST OF TECH	Maddalon, D. V.	LARC	Taneja, N. K.	NAS 1-15268	2711
41	MASS INST OF TECH	Harris, R. L., Sr.	LARC	Whitehurst, C. A.	NCC 1-23	2740
41	MASS INST OF TECH	Dwoyer, D. L.	LARC	Abarbanel, S. S.	NCC 1-45	2741
41	MASS INST OF TECH	Downing, D. R.	LARC	Simpson, R. W.	NGL 22-009-640	2752
41	MASS INST OF TECH	Boyd, R. P.	LARC	Haldeman, C. W.	NSG 1356	2770
41	MASS INST OF TECH	Boyd, R. P.	LARC	Covert, E. F.	NSG 1502	2771
41	MASS INST OF TECH	Chima, R.	LERC	Thompson, W. T.	NAG 3-9	2694
41	MASS INST OF TECH	Cassidy, J. F.	LERC	Haywood, J. B.	NAG 3-82	2696
41	MASS INST OF TECH	Crouse, J. E.	LERC	Kerrebrock, J. L.	NAS 3-20473	2715
41	MASS INST OF TECH	Gorrell, W. T.	LERC	Kerrebrock, J. L.	NGL 22-009-383	2749

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41	MASS INST OF TECH	Weiss, S.	LERC	Witmer, E. A.	NGR 22-009-339	2755
41	MASS INST OF TECH	Brabbs, T. A.	LERC	Hoult, D. P.	NSG 3076	2786
41	MASS INST OF TECH	Adamczyk, J. J.	LERC	Kerrebrock, J. L.	NSG 3079	2787
41	MASS INST OF TECH	Adamczyk, J. J.	LERC	Greitzer, E. M.	NSG 3208	2790
41	MASS INST OF TECH	Chima, R.	LERC	Kerrebrock, J. L.	NSG 3234	2792
41	MASS INST OF TECH	Janetzke, D. C.	LERC	Dugundji, J.	NSG 3303	2795
41	MASS INST OF TECH	Bishop, A. R.	LERC	Thompkins, W. T.	NSG 3309	2796
41	MISSISSIPPI STATE U	Holmes, B. J.	LARC	Bull, G.	NAG 1-3	2963
41	MISSISSIPPI STATE U	South, J. C., Jr.	LARC	Thompson, J. F.	NGR 25-001-055	2973
41	MISSISSIPPI STATE U	Hall, A. W.	LARC	Rogerson, A. C.	NSG 1083	2974
41	MISSISSIPPI STATE U	Stewart, E. C.	LARC	Bennett, A. G., Jr.	NSG 1240	2975
41	MISSISSIPPI STATE U	Johnson, J. L.	LARC	Bennett, A. G., Jr.	*SG 1402	2976
41	MISSISSIPPI STATE U	Judd, J. H.	LARC	Bennett, A. G., Jr.	NSG 1454	2977
41	MISSISSIPPI STATE U	Thomas, J. L.	LARC	Bennett, A. G., Jr.	NSG 1623	2979
41	MISSISSIPPI STATE U	Mitchell, G. A.	LERC	Bennett, A. G., Jr.	NAG 3-56	2964
41	MONTANA STATE UNIV	Horstman, C. C.	ARC	Demetriades, A.	NAG 2-37	3020
41	NEW JERSEY INST TECH	Mundy, J. R.	GSFC	Gant, M.	NAS 5-26156	3063
41	NEW YORK UNIVERSITY	Hicks, R. M.	ARC	Garabedian, P. R.	NGR 33-016-201	3255
41	NEW YORK UNIVERSITY	Anderson, G. Y.	LARC	Agnone, A. M.	NGR 33-016-131	3253
41	NEW YORK UNIVERSITY	Edwards, C. L.	LARC	Zakkay, V.	NSG 1444	3257
41	NEW YORK UNIVERSITY	Graves, R. A.	HD-RT	Garabedian, P. R.	NGT 33-016-800	3256
41	NO CAROLINA STATE U	Kurtenbach, F. J.	DFRC	Smetana, F. O.	NSG 4025	3397
41	NO CAROLINA STATE U	Lamar, J. E.	LARC	Dejarnette, F. R.	NCC 1-13	3384
41	NO CAROLINA STATE U	South, J. C.	LARC	Hassan, H. A.	NCC 1-22	3385
41	NO CAROLINA STATE U	Wurster, K. E.	LARC	Dejarnette, F. R.	NCC 1-35	3386
41	NO CAROLINA STATE U	Campbell, J. F.	LARC	Dejarnette, F. R.	NCC 1-46	3387
41	NO CAROLINA STATE U	Brooks, T. F.	LARC	Hodgson, T. H.	NSG 1377	3391
41	NO CAROLINA STATE U	Crane, H. L.	LARC	Smetana, F. O.	NSG 1584	3395
41	NO CAROLINA STATE U	Stockman, N. O.	LERC	Boles, M. A.	NAG 3-89	3381
41	NORTHWESTERN UNIV	Faye, A. E.	ARC	Spencer, F. A.	NSG 2328	2202
41	OHIO STATE UNIV	Hicks, R. M.	ARC	Gregorek, G. M.	NAG 2-32	3489
41	OHIO STATE UNIV	Stroub, R. H.	ARC	Velkoff, H. R.	NCA 2-565001	3505
41	OHIO STATE UNIV	Holst, T. L.	ARC	Nakamura, S.	NCA 2-565901	3506
41	OHIO STATE UNIV	Marvin, J. G.	ARC	Petrie, S. L.	NSG 2298	3517
41	OHIO STATE UNIV	McGhee, R. J.	LARC	Gregorek, G. M.	NAS 1-14406	3496
41	OHIO STATE UNIV	Greene, G. C.	LARC	Gregorek, G. M.	NAS 1-15680	3497
41	OHIO STATE UNIV	Bergeron, H. P.	LARC	Weislogel, G. S.	NAS 1-15969	3498
41	OHIO STATE UNIV	Holmes, B. J.	LARC	Gregorek, G. M.	NAS 1-16388	3499
41	OHIO STATE UNIV	Holmes, B. J.	LARC	Gilson, R. D.	NSG 1620	3511
41	OHIO STATE UNIV	Everhart, J. L.	LARC	Burggraf, O. R.	NSG 1622	3512
41	OHIO STATE UNIV	Shaw, R. J.	LERC	Gregorek, G. M.	NAG 3-28	3491
41	OHIO STATE UNIV	Shaw, J.	LERC	Korkan, K. D.	NAG 3-109	3493
41	OHIO STATE UNIV	Mitchell, G. A.	LERC	Gregorek, G. M.	NSG 3247	3520
41	OKLAHOMA STATE UNIV	Miller, S. A.	ARC	Wiggins, K. E.	NAS 2-10467	3593
41	OKLAHOMA STATE UNIV	Steinle, F. W.	ARC	Moretti, P. M.	NSG 2396	3597
41	OKLAHOMA STATE UNIV	Gilyard, G. B.	DFRC	Swain, R. L.	NSG 4018	3598
41	OKLAHOMA STATE UNIV	Marek, C. J.	LERC	Lilley, D. G.	NAG 3-74	3591
41	OLD DOMINION UNIV	Bushnell, D. M.	LARC	Grosch, C. E.	NAG 1-96	4160
41	OLD DOMINION UNIV	Erickson, W. D.	LARC	Unavailable	NAS 1-15648	4163
41	OLD DOMINION UNIV	Drummond, J. P.	LARC	Tiwari, S. N.	NAS 1-15930	4164
41	OLD DOMINION UNIV	Peterson, J. B.	LARC	Goghia, G. L.	NCC 1-9	4166
41	OLD DOMINION UNIV	Erickson, W. D.	LARC	Roberts, A. S.	NGR 47-003-052	4173
41	OLD DOMINION UNIV	Dixon, S. C.	LARC	Thornton, E. A.	NSG 1167	4177
41	OLD DOMINION UNIV	Peterson, J. B., Jr	LARC	Kuhlman, J. M.	NSG 1357	4185
41	OLD DOMINION UNIV	Graves, R. A., Jr.	LARC	Tiwari, S. N.	NSG 1464	4187
41	OLD DOMINION UNIV	Creedon, J. F.	LARC	Tcheng, P.	NSG 1480	4189
41	OLD DOMINION UNIV	Bushnell, D. M.	LARC	Goghia, G. L.	NSG 1491	4190
41	OLD DOMINION UNIV	Kilgore, R. A.	LARC	Goghia, G. L.	NSG 1503	4192

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41	OLD DOMINION UNIV	Dwyer, D. L.	LARC	Cooke, C. H.	NSG 1517	4193
41	OLD DOMINION UNIV	Yates, F. C., Jr	LARC	Kandil, O. A.	NSG 1560	4196
41	OLD DOMINION UNIV	Lamar, J. F.	LARC	Goghia, G. I.	NSG 1561	4197
41	OLD DOMINION UNIV	Margason, R. J.	LARC	Barna, P. S.	NSG 1563	4198
41	OLD DOMINION UNIV	Bushnell, D. M.	LARC	Grosch, C. F.	NSG 1618	4200
41	OLD DOMINION UNIV	Hefner, J. N.	LARC	Ash, R. I.	NSG 1634	4201
41	OLD DOMINION UNIV	Harvey, W. D.	LARC	Goghia, G. I.	NSG 1645	4202
41	OLD DOMINION UNIV	Armstrong, E. S.	LARC	Liberty, S. R.	NSG 1650	4204
41	PENN STATE U-UNIV PK	Norum, T. D.	LARC	Daniel, O. H.	NAG 1-4	3688
41	PENN STATE U-UNIV PK	Chambers, J. R.	LARC	McCormick, B. W.	NAG 1-73	3689
41	PENN STATE U-UNIV PK	Fisher, B. D.	LARC	McCormick, B. W.	NSG 1308	3720
41	PENN STATE U-UNIV PK	Gatski, T. B.	LARC	Morris, P. J.	NSG 1580	3722
41	PENN STATE U-UNIV PK	Britsch, W. R.	IFRC	Lakshminarayana, B.	NGI 39-009-007	3716
41	PENN STATE U-UNIV PK	Shaw, L. M.	IFRC	Lakshminarayana, B.	NSG 3012	3724
41	PENN STATE U-UNIV PK	Sockol, P. M.	IFRC	Lakshminarayana, B.	NSG 3032	3725
41	PENN STATE U-UNIV PK	Sockol, P. M.	IFRC	Lakshminarayana, B.	NSG 3212	3727
41	PENN STATE U-UNIV PK	Sanger, N. C.	IFRC	Kubo, I.	NSG 3264	3728
41	PENN STATE U-UNIV PK	Englert, G. W.	IFRC	Morris, P. J.	NSG 3265	3729
41	PENN STATE U-UNIV PK	Sockol, P. M.	IFRC	Lakshminarayana, B.	NSG 3266	3730
41	PENN STATE U-UNIV PK	Mitchell, G. A.	IFRC	McCormick, B. W.	NSG 3304	3732
41	POLY INST OF NY	Smith, J. H.	ARC	Ison, M. P.	NCC 2-87	3268
41	POLY INST OF NY	Salas, M. D.	LARC	Moretti, G.	NSG 1248	3270
41	PRINCETON UNIVERSITY	Biggers, J.	ARC	Miles, R. B.	NCC 2-94	3080
41	PRINCETON UNIVERSITY	Davis, S. S.	ARC	Dowell, F. H.	NSG 2194	3087
41	PRINCETON UNIVERSITY	Horstman, C. C.	ARC	Settles, G. S.	NSG 2299	3088
41	PRINCETON UNIVERSITY	Downing, D. R.	LARC	Stengel, R. I.	NAS 1-15758	3069
41	PRINCETON UNIVERSITY	Garren, J. F.	LARC	Stengel, R. I.	NAS 1-15764	3070
41	PRINCETON UNIVERSITY	Downing, D. R.	LARC	Stengel, R. I.	NGI 31-001-252	3083
41	PRINCETON UNIVERSITY	Mixson, J. S.	LARC	Dowell, F. H.	NSG 1253	3084
41	PRINCETON UNIVERSITY	Schy, A. A.	LARC	Stengel, R. I.	NSG 1587	3085
41	PRINCETON UNIVERSITY	Jones, J. J.	LARC	Bienkowski, G. K.	NSG 1630	3086
41	PRINCETON UNIVERSITY	Szaniak, A. J.	IFRC	Bracco, F. V.	NAG 3-8	3064
41	PRINCETON UNIVERSITY	Braun, W. H.	IFRC	Dowell, F. H.	NSG 3292	3092
41	PURDUE UNIVERSITY	Carmichael, R. I.	ARC	Anderson, D. C.	NSG 2192	2309
41	PURDUE UNIVERSITY	Berry, D. T.	DFRC	Schmidt, D. K.	NAG 4-1	2292
41	PURDUE UNIVERSITY	Mixson, J. S.	LARC	Crocker, M. J.	NAG 1-58	2288
41	PURDUE UNIVERSITY	Swanson, R. C.	LARC	McCarthy, D. R.	NSG 1635	2308
41	PURDUE UNIVERSITY	Lehtinen, B.	IFRC	Leiminger, G. G.	NAG 3-17	2289
41	PURDUE UNIVERSITY	Steinke, R. J.	IFRC	Murthy, S. N.	NAG 3-62	2291
41	PURDUE UNIVERSITY	Stepka, F. S.	IFRC	LeCuyer, M. R.	NSG 3071	2312
41	PURDUE UNIVERSITY	Katsanis, T.	IFRC	Ragsdell, K. M.	NSG 3105	2313
41	PURDUE UNIVERSITY	Serafini, J. S.	IFRC	Sullivan, J. P.	NSG 3135	2314
41	PURDUE UNIVERSITY	Chamis, C. C.	IFRC	Sun, C. T.	NSG 3185	2315
41	PURDUE UNIVERSITY	Lyons, V. J.	IFRC	Telebvre, A. H.	NSG 3213	2316
41	PURDUE UNIVERSITY	Boldman, D. R.	IFRC	Fleeter, S.	NSG 3285	2319
41	PURDUE UNIVERSITY	Bishop, A. R.	IFRC	Hoffman, J. D.	NSG 3311	2320
41	QUEENSBOROUGH COMM C	Bouge, R. K.	DFRC	Kousourou, G.	NAG 4-2	3274
41	RENSSELAER POLY NY	Harris, C. D.	LARC	Nagamatsu, H. T.	NSG 1624	3292
41	RENSSELAER POLY NY	Simoneau, R. J.	IFRC	Mayle, R. F.	NSG 3262	3296
41	RUTGERS U-N BRUNSWK	Claus, R. W.	IFRC	Johnson, J. A.	NSG 3280	3109
41	SAN JOSE STATE UNIV	Stroub, R. H.	ARC	Linbeck, A. G.	NCA 2-675001	1323
41	STANFORD UNIVERSITY	Williams, L. J.	ARC	Shevell, R. S.	NAG 2-18	1360
41	STANFORD UNIVERSITY	Chapman, G. T.	ARC	Cantrell, B.	NAG 2-21	1361
41	STANFORD UNIVERSITY	Peterson, V. I.	ARC	Reynolds, W. C.	NAG 2-29	1362
41	STANFORD UNIVERSITY	Presley, I. I.	ARC	Kline, S. J.	NAG 2-42	1364
41	STANFORD UNIVERSITY	Presley, I. I.	ARC	Karamchett, K.	NAG 2-43	1365
41	STANFORD UNIVERSITY	Yu, Y. H.	ARC	Baganoff, D.	NAG 2-45	1367
41	STANFORD UNIVERSITY	Lomax, H.	ARC	Shevell, R. S.	NCA 2-745001	1396

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41	STANFORD UNIVERSITY	Lomax, H.	ARC	Baganoff, D	NCA 2-745005	1399
41	STANFORD UNIVERSITY	Deiwert, G. S.	ARC	Baganoff, D.	NCA 2-745006	1400
41	STANFORD UNIVERSITY	Robinson, W. R	ARC	Karamcheti, K	NCC 2-13	1411
41	STANFORD UNIVERSITY	Presley, R.	ARC	Karamcheti, K.	NCC 2-18	1413
41	STANFORD UNIVERSITY	Carr, L. W	ARC	Reynolds, W. C	NCC 2-21	1414
41	STANFORD UNIVERSITY	Tauber, M. E.	ARC	Karamcheti, K.	NCC 2-42	1418
41	STANFORD UNIVERSITY	Snyder, C. T	ARC	Karamcheti, K.	NCC 2-55	1424
41	STANFORD UNIVERSITY	Marvin, J. G.	ARC	Karamcheti, K	NCC 2-59	1425
41	STANFORD UNIVERSITY	Olson, L. E.	ARC	Karamcheti, K.	NCC 2-62	1426
41	STANFORD UNIVERSITY	Dickey, D.	ARC	Karamcheti, K.	NCC 2-74	1429
41	STANFORD UNIVERSITY	Atencio, A.	ARC	Karamcheti, K.	NCC 2-75	1430
41	STANFORD UNIVERSITY	Soderman, P. T	ARC	Karamcheti, K.	NCC 2-76	1431
41	STANFORD UNIVERSITY	Davis, S.	ARC	Karamcheti, K	NCC 2-77	1432
41	STANFORD UNIVERSITY	McKenzie, R. L	ARC	Bershafer, D	NCC 2-82	1433
41	STANFORD UNIVERSITY	Presley, L. L	ARC	Karamcheti, K	NCC 2-89	1434
41	STANFORD UNIVERSITY	Caradonna, F. X	ARC	Sieger, T.	NCC 2-97	1435
41	STANFORD UNIVERSITY	Faye, A. E.	ARC	Dajani, J. R	NSG 2203	1460
41	STANFORD UNIVERSITY	Horne, C.	ARC	Karamcheti, K.	NSG 2308	1462
41	STANFORD UNIVERSITY	Ciffone, D. L	ARC	Ashley, H.	NSG 2359	1463
41	STANFORD UNIVERSITY	Chapman, G. F	ARC	Cantwell, B	NSG 2392	1464
41	STANFORD UNIVERSITY	Franklin, J. A.	ARC	Debra, D. B	NSG 2400	1465
41	STANFORD UNIVERSITY	Edwards, J. W	DFRC	Debra, D. B	NSG 4002	1467
41	STANFORD UNIVERSITY	Doggett, R. V., Jr	LARC	Ashley, H	NGL 05-020-243	1441
41	STANFORD UNIVERSITY	Graves, R. A	HD-RT	Chapman, D. R	NGT 05-020-801	1457
41	STEVENS INST OF TECH	Bushnell, D. M.	LARC	Salwen, H	NSG 1619	3115
41	TEXAS A&M UNIV SYSTM	Enomoto, F. Y.	ARC	Miley, S. J	NAG 2-25	3904
41	TEXAS A&M UNIVERSITY	Morgan, D	ARC	Bruse, J. C	NAS 2-10272	3909
41	TEXAS A&M UNIVERSITY	Corsiglia, V. R.	ARC	Chevalier, H	NCC 2-78	3932
41	TEXAS A&M UNIVERSITY	Andre, W. L	ARC	Phillips, D. T	NSG 2226	3943
41	TEXAS A&M UNIVERSITY	Nelsen, F. D	GSFC	El-sayed, S. Z	NAS 5-22966	3910
41	TEXAS A&M UNIVERSITY	Zorumski, W. F	LARC	Gerhold, C. H	NAG 1-11	3905
41	TEXAS A&M UNIVERSITY	Everhart, J. L.	LARC	Carlson, I. A	NSG 1174	3939
41	TEXAS A&M UNIVERSITY	Chambers, J. R	LARC	Chevalier, H.	NSG 1407	3941
41	TEXAS A&M UNIVERSITY	Needleman, H. C	WFC	Carlson, I. A	NAS 6-3072	3915
41	TUSKEGEE INSTITUTE	Shanks, R. F.	LARC	Hargrove, A	NAG 1-72	1025
41	TUSKEGEE INSTITUTE	Glassman, A. J	LFRC	Jenkins, R. M	NSG 3295	1034
41	UNIV OF AKRON	Chamis, C. C	LFRC	Simon, A. I	NAG 3-50	3531
41	UNIV OF AKRON	Chamis, C. C	LFRC	Adams, M. I.	NSG 3283	3537
41	UNIV OF ARIZONA	Ballhaus, W. F	ARC	Seebass, A. R	NSG 2112	1165
41	UNIV OF ARIZONA	Chamis, C. C	LFRC	Gallagher, R. H	NAG 3-45	1114
41	UNIV OF ARIZONA	Graves, R. A	HD-RT	Seebass, A. R	NGT 03-002-200	1164
41	UNIV OF ARIZONA	Murphy, R. F	HD-SL	Tomasko, M. G	NAGW 55	1124
41	UNIV ARKANSAS-FAYETTE	Ragent, B	ARC	Mazumder, M. K	NGL 04-001-007	1200
41	UNIV CALIF-BERKELEY	Faye, A. F	ARC	Kanafani, A	NAG 2-19	1478
41	UNIV CALIF-BERKELEY	Lee, G	ARC	Holt, M	NGR 05-003-451	1542
41	UNIV CALIF-BERKELEY	Marek, C. J	LFRC	Oppenheim, A. K	NSG 3227	1551
41	UNIV CALIF-DAVIS	Marvin, J. G.	ARC	Launders, B	NSG 2256	1573
41	UNIV CALIF-L ANGELES	Ahtye, W	ARC	Meecham, W. C	NSG 2290	1627
41	UNIV CALIF-L ANGELES	Edwards, J. W	DFRC	Balakrishnan, A. V.	NSG 4015	1631
41	UNIV CALIF-L ANGELES	Hammond, C. F	LARC	Friedmann, P	NSG 1578	1626
41	UNIV CALIF-L ANGELES	Friedman, R	LFRC	Liu, C. Y	NSG 3116	1628
41	UNIV CALIF-SAN DIEGO	Marek, C. J	LFRC	Libby, P. A.	NSG 3219	1701
41	UNIV OF CINCINNATI	Hodges, D. H	ARC	CrespoDaSilva, M. R	NAG 2-38	3539
41	UNIV OF CINCINNATI	Erzberger, H.	ARC	Slater, G. L	NCA 2-130801	3543
41	UNIV OF CINCINNATI	Rakich, J. V	ARC	Davis, R. T	NCA 2-130901	3544
41	UNIV OF CINCINNATI	Swanson, R. C	LARC	Rubin, S. S.	NAG 1-8	3538
41	UNIV OF CINCINNATI	Glassman, A. J	LFRC	Tabakoff, W	NAG 3-26	3540
41	UNIV OF CINCINNATI	Katsanis, T	LFRC	Hamed, A	NAG 3-52	3541

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41	UNIV OF CINCINNATI	McFarland, E. R.	LERC	Tabakoff, W.	NAS 3-21609	3542
41	UNIV OF CINCINNATI	Kao, H. C.	LERC	Ghia, K. N.	NSG 3267	3555
41	UNIV OF CINCINNATI	Graves, R. A.	HD-RT	Rubin, S. G.	NGT 36-004-800	3545
41	UNIV COLORADO-BOLDR	Stainback, P. C.	LARC	Uberoi, M. S.	NAG 1-59	1848
41	UNIV COLORADO-BOLDR	Groeneweg, J. F.	LERC	Uberoi, M. S.	NSG 3181	1884
41	UNIV OF CONNECTICUT	Olsen, W. A.	LERC	Bowley, W. W.	NAG 3-64	1929
41	UNIV OF DAYTON	Shaw, R. J.	LERC	Luers, J. K.	NAG 3-65	3557
41	UNIV OF DAYTON	Camp, D. W.	MSFC	Leurs, J. K.	NAS 8-31294	3562
41	UNIV OF DAYTON	Camp, D. W.	MSFC	Luers, J. K.	NAS 8-32111	3563
41	UNIV OF DAYTON	Melson, W. E., Jr.	WFC	Luers, J. K.	NSG 6026	3565
41	UNIV OF DELAWARE	Adamczyk, J. J.	LERC	Seidel, B. S.	NSG 3189	1954
41	UNIV OF DELAWARE	Farrell, C. A., Jr.	LERC	Seidel, B. S.	NSG 3270	1955
41	UNIV OF FLORIDA	Malcolm, G. N.	ARC	Clarkson, M. H.	NCC 2-23	2060
41	UNIV OF FLORIDA	Chapman, G. T.	ARC	Clarkson, M. H.	NGT 10-005-800	2065
41	UNIV OF FLORIDA	Aoyagi, K.	ARC	Fearn, R. L.	NSG 2288	2070
41	UNIV OF FLORIDA	Wilkinson, S. P.	LARC	Clarkson, M. H.	NAG 1-104	2048
41	UNIV OF FLORIDA	Margason, R. J.	LARC	Fearn, R. L.	NGT 10-005-801	2066
41	UNIV HOUSTON-HOUSTON	Maestrello, L.	LARC	Nadkarni, A. A.	NSG 1475	3967
41	UNIV ILLINOIS-URBANA	Somers, D. M.	LARC	Ormsbee, A. I.	NAG 1-76	2244
41	UNIV ILLINOIS-URBANA	Hankins, W. W.	LARC	Chen, R. T.	NAG 1-90	2245
41	UNIV ILLINOIS-URBANA	Baker, C. E.	LERC	Strehlow, R. A.	NAG 3-60	2246
41	UNIV ILLINOIS-URBANA	Bober, L. J.	LERC	Chow, W. L.	NGL 14 505-140	2254
41	UNIV OF IOWA	Marvin, J. G.	ARC	Ramaprian, B. R.	NSG 2300	2372
41	UNIV OF IOWA	Hoffman, R. A.	GSFC	Frank, L. A.	NAS 5-25689	2362
41	UNIV OF IOWA	Hoffman, R. A.	GSFC	Shawhan, S.	NAS 5-25690	2363
41	UNIV OF IOWA	Stockman, N. O.	LERC	Chou, D. C.	NSG 3117	2374
41	UNIV OF IOWA	Johnson, J. M.	LERC	Chen, C. J.	NSG 3305	2375
41	UNIV OF KANSAS	Stroub, P. P.	ARC	Zerwekh, R.	NCC 2-92	2402
41	UNIV OF KANSAS	Black, J. M.	DFRC	Roskam, R. J.	NAG 4-5	2390
41	UNIV OF KANSAS	Szalai, K. J.	DFRC	Clark, R.	NCC 4-2	2403
41	UNIV OF KANSAS	Jenkins, J. M.	DFRC	Lenzen, K.	NSG 4008	2413
41	UNIV OF KANSAS	Edwards, J. W.	DFRC	Kotsabasis, A.	NSG 4017	2414
41	UNIV OF KANSAS	Kordes, E. E.	DFRC	Roskam, J.	NSG 4019	2415
41	UNIV OF KANSAS	Frink, N. T.	LARC	Lan, C. E.	NAG 1-75	2383
41	UNIV OF KANSAS	Bergerson, H. P.	LARC	Roskam, J.	NAG 1-94	2384
41	UNIV OF KANSAS	Holmes, B. J.	LARC	Roskam, J.	NAS 1-15770	2393
41	UNIV OF KANSAS	Downing, D. R.	LARC	Roskam, J.	NAS 1-16255	2394
41	UNIV OF KANSAS	Holmes, B. J.	LARC	Kohlman, D. L.	NAS 1-16363	2395
41	UNIV OF KANSAS	Stephens, D. G.	LARC	Roskam, J.	NCC 1-6	2400
41	UNIV OF KANSAS	Campbell, J. F.	LARC	Lan, C. E.	NCC 1-18	2401
41	UNIV OF KANSAS	Lamar, J. E.	LARC	Roskam, J.	NSG 1046	2405
41	UNIV OF KANSAS	Hassell, J. L., Jr.	LARC	Roskam, J.	NSG 1574	2409
41	UNIV OF KANSAS	Lamar, J. E.	LARC	Lan, C. E.	NSG 1629	2410
41	UNIV OF KANSAS	Holmes, B. J.	LARC	Lenzen, K.	NSG 1633	2411
41	UNIV OF KANSAS	Neumann, H. E.	LERC	Schweikhard, W. G.	NAG 3-11	2386
41	UNIV OF KANSAS	Evanich, P. L.	LERC	Kohlman, D. L.	NAG 3-71	2388
41	UNIVERSITY OF LOWELL	Card, M. F.	LARC	Lamont, P. J.	NSG 1295	2823
41	UNIV MARYLAND-COL PK	Walsh, M. J.	LARC	Wallace, J. M.	NAG 1-24	2517
41	UNIV MARYLAND-COL PK	Erickson, W. D.	LARC	Anderson, J. D.	NCC 1-41	2557
41	UNIV MARYLAND-COL PK	Dicarlo, D. J.	LARC	Barlow, J. B.	NSG 1570	2579
41	UNIV MICH-ANN ARBOR	Hoffman, R. A.	GSFC	Hays, P. B.	NAS 5-25691	2884
41	UNIV MICH-ANN ARBOR	Hoffman, R. A.	GSFC	Carignan, G. R.	NAS 5-26069	2887
41	UNIV MICH-ANN ARBOR	Powell, R. W.	LARC	Vinh, N. X.	NAG 1-86	2855
41	UNIV MICH-ANN ARBOR	McCarty, J. L.	LARC	Clark, S. K.	NSG 1494	2909
41	UNIV MICH-ANN ARBOR	McCarty, J. L.	LARC	Clark, S. K.	NSG 1607	2910
41	UNIV MICH-ANN ARBOR	Ercegovic, D. E.	LERC	Kauffman, C. W.	NSG 3165	2912
41	U MINN-MNPLS-ST PAUL	Chapman, G. T.	ARC	Moran, J. P.	NAG 2-4	2932
41	UNIV MO-ROLLA	Holst, T. L.	ARC	Lee, S. C.	NCA 2-450001	2996

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41	UNIV MO-ROLLA	Holmes, B. J.	LARC	Selberg, B. P.	NAG 1-26	2993
41	UNIV MO-ROLLA	Hefner, J. N.	LARC	Patterson, G. K.	NSG 1452	2998
41	UNIV MO-ROLLA	Baumeister, K. J.	LFRC	Eversman, W.	NSG 3231	2999
41	UNIV NEVADA-L VEGAS	Davis, S. S.	ARC	Fromme, J. A.	NSG 2140	3035
41	UNIV OF NEVADA-RENO	Presley, L. L.	ARC	Rose, W. C.	NSG 2291	3037
41	UNIV OF NOTRE DAME	Somers, D. M.	LARC	Mueller, T. J.	NSG 1419	2326
41	UNIV OKLAHOMA-NORMAN	Koenig, D. G.	ARC	Krothapalli, A.	NCA 2-580001	3614
41	UNIV OF SANTA CLARA	Lomax, H.	ARC	Vinokur, M.	NCC 2-16	1781
41	UNIV OF SOUTHAMPTON	Kilgore, R. A.	LARC	Goodyer, M. J.	NSG 7172	4427
41	UNIV OF SOUTHAMPTON	Boyden, R. P.	LARC	Goodyer, M. J.	NSG 7523	4428
41	UNIV OF SOUTHERN CAL	Hefner, J. N.	LARC	Blackwelder, R. F.	NAG 1-19	1786
41	UNIV OF SOUTHERN CAL	Stein, M.	LARC	Seide, P.	NSG 1401	1799
41	UNIV TENNESSEE-KNOXV	Steink, F. W., Jr	ARC	Tirres, C.	NCA 2-772901	3838
41	UNIV TENNESSEE-KNOXV	Steink, F. W., Jr	ARC	Wu, J. M.	NSG 2379	3843
41	UNIV TENNESSEE-KNOXV	Bland, S. R.	LARC	Kumble, K. R.	NSG 1224	3842
41	UNIV TENNESSEE-KNOXV	Segel, R.	LARC	Kurosaka, M.	NSG 3287	3845
41	UNIV TENNESSEE-KNOXV	Baumeister, K. J.	LFRC	White, J. W.	NAG 3-18	3821
41	UNIV TENNESSEE-KNOXV	Shaw, R. J.	LFRC	Keshock, E. G.	NAG 3-83	3822
41	UNIV TENNESSEE-KNOXV	Rostafinski, W.	LFRC	Caruthers, J. F.	NAG 3-86	3823
41	UNIV TENNESSEE-KNOXV	Shaw, R. J.	LFRC	Keshock, E. G.	NAG 3-90	3824
41	UNIV TEXAS-AUSTIN	Lasinski, T. A.	ARC	Carey, G. F.	NAG 2-5	3982
41	UNIV TEXAS-AUSTIN	Goodrich, W. D.	JSC	Bertin, J. J.	NAS 9-13680	3996
41	UNIV TEXAS-DALLAS	Hoffman, R. A.	GSFC	Heelis, R. A.	NAS 5-26068	4046
41	UNIV TEXAS-DALLAS	Hoffman, R. A.	GSFC	Winningham, J. D.	NAS 5-26070	4047
41	UNIV TEXAS-DALLAS	Hoffman, R. A.	GSFC	Hanson, W. B.	NAS 5-26071	4048
41	UNIV OF TOLEDO	Shaw, R. J.	LFRC	Dewitt, K. J.	NAG 3-72	3568
41	UNIV OF TOLEDO	Brown, G. V.	LFRC	Koza, K. R.	NSG 3139	3574
41	UNIV OF WASHINGTON	Chapman, G. T.	ARC	Childs, M. F.	NGL 48-002-047	4328
41	UNIV OF WASHINGTON	Lee, G.	ARC	Childs, M. F.	NGR 48-002-141	4329
41	UNIV OF WASHINGTON	Greer, B.	ARC	Joppa, R. G.	NSG 2176	4331
41	UNIV OF WASHINGTON	Braun, W. H.	LFRC	Dixon, L. J.	NSG 3261	4336
41	VILLANOVA UNIVERSITY	Crabill, N. L.	LARC	Goldberg, J. H.	NAS 1-16095	3774
41	VIRGINIA POLY INST	Rubens, M. W.	ARC	Pierce, F. J.	NSG 2301	4289
41	VIRGINIA POLY INST	Price, D. B.	LARC	Kelly, H. J.	NAG 1-52	4241
41	VIRGINIA POLY INST	Zohy, F. V.	LARC	Lewis, C. H.	NAG 1-53	4242
41	VIRGINIA POLY INST	Newsom, J. R.	LARC	Anderson, I. R.	NAG 1-80	4245
41	VIRGINIA POLY INST	Melfi, L. T.	LARC	Lewis, C. H.	NAG 1-101	4247
41	VIRGINIA POLY INST	Frickson, W. D.	LARC	Hobeika, A. G.	NCC 1-20	4267
41	VIRGINIA POLY INST	Campbell, J. F.	LARC	Marchman, J. F.	NGT 47-004-800	4270
41	VIRGINIA POLY INST	Harris, J. E.	LARC	Nayfeh, A. H.	NSG 1255	4274
41	VIRGINIA POLY INST	Yates, F. C., Jr	LARC	Mook, D. T.	NSG 1262	4275
41	VIRGINIA POLY INST	Creedon, J. F.	LARC	Vanlandingham, H. F.	NSG 1354	4276
41	VIRGINIA POLY INST	Hefner, J. N.	LARC	Schetz, J. A.	NSG 1589	4283
41	VIRGINIA POLY INST	Hefner, J. N.	LARC	Saric, W. S.	NSG 1608	4286
41	VIRGINIA POLY INST	Johns, A. I.	LFRC	Jakubowski, A. K.	NSG 3073	4290
41	VIRGINIA POLY INST	Flemings, D. P.	LFRC	Mitchell, L. D.	NSG 3239	4292
41	VIRGINIA POLY INST	Lehtinen, B.	LFRC	Leonard, R. G.	NSG 3275	4294
41	WAYNE STATE UNIV	Maestrello, L.	LARC	Chow, P. L.	NSG 1330	2927
41	WESTERN MICHIGAN U	Schmidt, H. W.	LFRC	Behm, H. D.	NAG 3-92	2928
41	WICHITA STATE UNIV	Watts, J. D.	LARC	Cook, F. L.	NCC 1-21	2419
41	WICHITA STATE UNIV	Weidner, J. P.	LARC	Zumwalt, G. W.	NCC 1-31	2420
41	WICHITA STATE UNIV	McGhee, R. J.	LARC	Wentz, W. H., Jr.	NSG 1165	2421
41	WICHITA STATE UNIV	Rogers, R. C.	LARC	Zumwalt, G. W.	NSG 1575	2422
41	WICHITA STATE UNIV	Miller, D. R.	LFRC	Wentz, W. H., Jr.	NSG 3277	2424
41	YOUNGSTOWN STATE U	Creedon, J. F.	LARC	Foulkes, R. H.	NAG 1-88	3589
41	AUBURN UNIV-AUBURN	Shackelford, B. J.	MSFC	Foster, W. A.	NAS 8-33886	1017
41	CITY COLLEGE OF N Y	Montgomery, R. C.	LARC	Thau, F. E.	NAG 1-6	3144
42	COLORADO STATE UNIV	Priem, R. J.	LFRC	Mitchell, C. F.	NGR 06-002-095	1829

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42	COLORADO STATE UNIV	Kerslake, W. R.	LERC	Kaufman, H. R.	NSG 3011	1836
42	HOWARD UNIVERSITY	Waltz, J.	LARC	Jones, I. W.	NSG 1320	2010
42	MASS INST OF TECH	Kramer, E. H.	LERC	Kolm, H. H.	NSG 3175	2788
42	MASS INST OF TECH	Greenfield, M. A.	HD-RT	Mar, J. W.	NAGW 21	2707
42	MASS INST OF TECH	Schwenk, F.	HD-RT	Mar, J. W.	NSG 7396	2812
42	OHIO STATE UNIV	Woolley, C. T.	LARC	Klein, C. A.	NAG 1-30	3488
42	OLD DOMINION UNIV	Cooper, P. A.	LARC	Prabhakaran, R.	NCC 1-26	4167
42	PENN STATE U-UNIV PK	Mahon, J. B.	HD-ML	Unavailable	NASW 3256	3710
42	PRINCETON UNIVERSITY	Kramer, E. H.	LERC	O'Neill, G. K.	NSG 3176	3090
42	PRINCETON UNIVERSITY	Lazar, J.	HD-RP	Jahn, R. G.	NGL 31-001-005	3081
42	RENSSELAER POLY-NY	Reid, R. C.	JSC	Balas, M. J.	NAS 9-16053	3286
42	SOUTHERN METHODIST U	Marvin, J. G.	ARC	Simpson, R. L.	NSG 2354	3902
42	STANFORD UNIVERSITY	Howe, J. T.	ARC	Bershadar, D.	NCC 2-10	1410
42	STANFORD UNIVERSITY	Lorell, K. R.	ARC	Powell, J. D.	NCC 2-29	1415
42	STANFORD UNIVERSITY	Kant, S.	GSFC	Debra, D. B.	NAS 5-21960	1376
42	STANFORD UNIVERSITY	Horner, G. C.	LARC	Cannon, R. H.	NAG 1-97	1359
42	STANFORD UNIVERSITY	Szurlock, O. F.	LERC	Breakwell, J. V.	NAG 3-63	1370
42	STATE UNIV NY-ALBANY	Whiting, E. E.	HD-RT	Ratchiff, K. I.	NSG 7501	3316
42	UNIV OF DAYTON	Gentile, I. C.	LERC	Engler, N.	NAS 3-21370	3558
42	UNIV OF DELAWARE	Garcia, R.	LARC	Pipes, R. B.	NSG 1409	1952
42	UNIV OF LOUISVILLE	Winder, S. W.	MSFC	Childs, D. W.	NAS 8-31233	2438
42	UNIV OF PITTSBURGH	Kerslake, W. R.	LERC	McWilliams, P. A.	NAS 3-22662	3756
42	UNIV STHN COLORADO	Hruby, R. J.	ARC	Carestia, R. A.	NCC 2-41	1924
42	UNIV TEXAS-AUSTIN	Fuchs, A. J.	GSFC	Tapley, B. D.	NAS 5-25756	3988
42	UNIV TEXAS-AUSTIN	Finley, C. J.	HD-FR	Silverberg, E. C.	NASW 3296	4005
42	VIRGINIA POLY INST	Montgomery, R. C.	LARC	Johnson, C. R.	NAG 1-7	4240
42	VIRGINIA POLY INST	Montgomery, R. C.	LARC	Metrovitch, I.	NCC 1-4	4264
43	BUCKNELL UNIVERSITY	Serafini, T. T.	LERC	Snyder, W. J.	NSG 3136	3642
43	CASI WESTERN RESERVE	Hsu, L. C.	LERC	Liu, C. C.	NAG 3-66	3411
43	CASI WESTERN RESERVE	Fordyce, J. S.	LERC	Liu, C. C.	NSG 3203	3443
43	CATHOLIC UNIVERSITY	Friedman, R.	LERC	Mcynihan, C. I.	NAG 3-94	1957
43	CLEVELAND STATE UNIV	Ashbrook, R. L.	LERC	Yeh, H. C.	NSG 3155	3472
43	MASS INST OF TECH	Mularz, E. J.	LERC	Heywood, J. B.	NGR 22-009-378	2756
43	PENN STATE U-UNIV PK	Loomis, W. R.	LERC	Klaus, F. F.	NAG 3-35	3690
43	RICE UNIVERSITY	Lin, C. H.	JSC	Davis, S. H.	NAS 9-15630	3883
43	STANFORD UNIVERSITY	Poppa, H.	ARC	Boudart, M.	NCA 2-745908	1407
43	STATE U NY-STONY BRK	Cochran, T. H.	LERC	Berlad, A. I.	NSG 3051	3338
43	UNIV OF DELAWARE	Alterescu, S.	GSFC	Glass, W. P.	NAS 5-26273	1950
43	UNIV OF FLORIDA	Sheiblev, D. W.	LERC	Walker, R. D., Jr.	NGR 10-005-182	2064
43	UNIV OF SHEFFIELD	Lyons, V. J.	LERC	Chigier, N. A.	NSG 7517	4426
44	NO CAR A&T STATE U	Montgomery, R. C.	LARC	Abu-saba, E. G.	NCC 1-37	3370
44	NO CAR A&T STATE U	Rhodes, M. D.	LARC	Sharma, A. V.	NSG 1631	3374
44	RENSSELAER POLY-NY	Rogers, J. L.	LARC	Feaser, I. J.	NSG 1636	3294
44	UNIV OF AKRON	Chamis, C. C.	LERC	Fertis, D. G.	NGT 36-001-800	3535
44	UNIV OF AKRON	Chamis, C. C.	LERC	Simon, A. L.	NGT 36-001-801	3536
44	UNIV COLORADO-BOLDR	Brooks, W. F.	ARC	Sture, S.	NAG 2-58	1849
44	UNIV ILLINOIS-CHICGO	Costes, N.	MSFC	Silver, M. L.	NAS 8-32993	2243
44	UNIV MARYLAND-COL PK	Salomonson, V. V.	GSFC	McCuen, R. H.	NGT 21-002-800	2573
45	ALABAMA A&M UNIV	Bilbro, J. W.	MSFC	Murty, S. S.	NSG 8037	1003
45	ALABAMA A&M UNIV	Gould, J. M.	MSFC	Shiva, S. G.	NSG 8057	1005
45	AUBURN UNIV-AUBURN	Matheney, J. I.	MSFC	Tung, C.	NAS 8-31572	1014
45	AUBURN UNIV-AUBURN	Routh, D. F.	MSFC	Kerns, D. V.	NAS 8-33092	1015
45	AUBURN UNIV-AUBURN	Harper, W.	MSFC	Shumpert, I.	NAS 8-33880	1016
45	AUBURN UNIV-AUBURN	Wagnon, F. W.	MSFC	Irwin, J. D.	NCA 8-133	1020
45	BOWIE STATE COLLEGE	Mundy, J. R.	GSFC	Bonds, J. W.	NCA 5-96	2470
45	CAL STATE U-FULLERTN	Arndt, G. D.	JSC	Marouf, A.	NAS 9-16207	1287
45	CARNEGIE-MELLON UNIV	Wilson, R. G.	LARC	Casasent, D.	NAS 1-16125	3645
45	CARNEGIE-MELLON UNIV	Baumbick, R. J.	LERC	Casasent, D.	NAG 3-5	3643

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45	CASE WESTERN RESERVE	Stevens, G. H.	FERC	Claspy, P. C.	NSG 3085	3436
45	CATHOLIC UNIVERSITY	Heaney, J. B.	GSFC	Lally, J. F.	NAS 5-26226	1958
45	CITY COLLEGE OF N.Y.	Land, C. K.	JSC	Schilling, D. I.	NAS 9-13940	3148
45	CITY COLLEGE OF N.Y.	Barnes, S. P.	FERC	Schilling, D. I.	NSG 5013	3154
45	CLARKSON COL. OF TECH	Rotnem, J. O.	FERC	Arozullah, M.	NSG 3191	3158
45	CLEVELAND STATE UNIV	McBrien, F. F.	FERC	Klingshirm, F. A.	NAG 3-108	3467
45	CLEVELAND STATE UNIV	Nieberding, W. C.	FERC	Marsel, J. F.	NSG 3222	3473
45	COLORADO STATE UNIV	Taylor, M. B.	GSFC	Parkenson, B. W.	NSG 5352	1844
45	COLUMBIA UNIVERSITY	Leroy, B.	FERC	Meadows, H.	NAS 3-22464	3165
45	CORNELL UNIVERSITY	McCreight, C. R.	ARC	Lee, C. A.	NSG 2389	3224
45	CORNELL UNIVERSITY	Conway, F. J.	FERC	Baliante, J. M.	NAG 1-83	3195
45	CORNELL UNIVERSITY	Hendricks, H. D.	FERC	Frey, J.	NSG 1642	3220
45	CORNELL UNIVERSITY	Conway, F. J.	FERC	Baliante, J. M.	NSG 1651	3221
45	CORNELL UNIVERSITY	Gilbert, F. J.	FERC	Thomas, R. J.	NAG 3-104	3198
45	DUKE UNIVERSITY	Gruber, R. P.	FERC	Wilson, T. G.	NSG 3157	3366
45	GEORGE WASHINGTON U.	Menechini, R.	GSFC	Lang, R. H.	NAG 5-83	1967
45	GEORGE WASHINGTON U.	Rende, J. A.	GSFC	Helgert, H. J.	NAS 5-24431	1969
45	GEORGE WASHINGTON U.	LeVine, D. M.	GSFC	Lang, R. H.	NSG 5288	1991
45	GEORGE WASHINGTON U.	Crosswell, W. F.	FERC	Liebowitz, H.	NGR 09-010-096	1983
45	GEORGE WASHINGTON U.	Crosswell, W. F.	FERC	Liebowitz, H.	NSG 1110	1985
45	GEORGIA INST OF TECH	King, J. I.	GSFC	Schuchardt, J. M.	NAS 5-23710	2114
45	GEORGIA INST OF TECH	King, J. I.	GSFC	Gagliano, J. A.	NAS 5-26220	2117
45	GEORGIA INST OF TECH	King, J. I.	GSFC	Forsythe, R. F.	NSG 5012	2141
45	GEORGIA INST OF TECH	O'Neal, R. I.	FERC	Gaylord, T. K.	NAS 1-15370	2110
45	GEORGIA INST OF TECH	Hein, G. I.	FERC	Zimmer, R. P.	DIN 3-73	2099
45	GEORGIA INST OF TECH	Inman, R. A.	MSFC	Wu, S. T.	NAS 8-33605	2122
45	GEORGIA INST OF TECH	Gleason, F. H.	MSFC	Gagliano, J. A.	NAS 8-33800	2123
45	HAMPTON INSTITUTE	Jobson, D. J.	FERC	Trehan, A. K.	NSG 1294	4149
45	HAMPTON INSTITUTE	Katzberg, S. J.	FERC	Trehan, A. K.	NSG 1552	4150
45	HOFSTRA UNIVERSITY	Johnson, J. W.	FERC	Weissman, W. F.	NGR 33-209-002	3245
45	HOWARD UNIVERSITY	Santarpia, D. F.	GSFC	Chowdhary, R.	NAS 5-26019	2005
45	HOWARD UNIVERSITY	Taylor, R. F.	GSFC	Sennott, J. W.	NSG 5336	2017
45	JOHNS HOPKINS UNIV	Pitts, F. F.	FERC	Masson, G. M.	NSG 1442	2500
45	MASS INST OF TECH	Shue, J. C.	GSFC	Kong, J. A.	NAS 5-24139	2720
45	MASS INST OF TECH	Ippolitto, I.	GSFC	Staelin, D. H.	NAS 5-25091	2723
45	MASS INST OF TECH	Armstrong, F. S.	FERC	Stem, G.	NAG 1-2	2684
45	MASS INST OF TECH	Hendricks, H. D.	FERC	Forstad, C. G.	NAG 1-48	2686
45	MASS INST OF TECH	Haves, P. J.	FERC	Epstein, D. J.	NAG 1-98	2689
45	MISSISSIPPI STATE U.	Wallace, G. R.	MSFC	Ingels, F. M.	NAS 8-31373	2965
45	MISSISSIPPI STATE U.	Hollis, B. R.	MSFC	Wade, F. F.	NAS 8-33448	2967
45	MISSISSIPPI STATE U.	Edge, T. M.	MSFC	Causey, W. H.	NAS 8-33450	2968
45	MISSISSIPPI STATE U.	Coffey, R. D.	MSFC	Ingels, F. M.	NAS 8-33887	2970
45	NO CAR A&T STATE U.	Hendricks, H. D.	FERC	Stefanikos, I.	NSG 1390	3372
45	NO CAROLINA STATE U.	Beng, H. F.	FERC	Snyder, W. F.	NAG 1-20	3378
45	NO CAROLINA STATE U.	Benz, H. F.	FERC	Snyder, W. F.	NSG 1353	3389
45	NO CAROLINA STATE U.	Batson, A. M.	FERC	Rajala, S. A.	NSG 1355	3390
45	NO CAROLINA STATE U.	Cockrell, C. R.	FERC	Kauffman, J. F.	NSG 1588	3396
45	OHIO STATE UNIV	Wolfe, J. H.	ARC	Dixon, R. S.	NSG 2162	3413
45	OHIO STATE UNIV	Hirschmann, I.	GSFC	Hodge, D. B.	NAS 5-22575	3501
45	OHIO STATE UNIV	Gulreath, M. C.	FERC	Burnside, W. D.	NSG 1498	3509
45	OHIO STATE UNIV	Gulreath, M. C.	FERC	Peters, I.	NSG 1613	3510
45	OHIO STATE UNIV	Baumbilk, R. J.	FERC	Collins, S. A., Jr.	NSG 3302	3522
45	OHIO STATE UNIV	Ippolito, F. J.	HD-FC	Hodge, D. B.	NASW 3393	3504
45	OHIO UNIVERSITY	Bundick, W. T.	FERC	McFarland, R. H.	NGR 36-009-017	3529
45	OLD DOMINION UNIV	Bailey, M. C.	FERC	Moskowitz, S. M.	NAG 1-63	4158
45	OLD DOMINION UNIV	Tripp, J. S.	FERC	Tcheng, P. F.	NSG 1079	4176
45	OLD DOMINION UNIV	Hellbaum, R. F.	FERC	Rogerson, A. C.	NSG 1177	4178
45	OLD DOMINION UNIV	Campbell, T. G.	FERC	Becher, J.	NSG 1331	4181

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45	OLD DOMINION UNIV	Ganner, P. A.	1 ARC	Varanasi, M. R.	NSG 1379	4184
45	OLD DOMINION UNIV	Gilreath, M. C.	1 ARC	Mielke, R. R.	NSG 1655	4205
45	PURDUE UNIVERSITY	Strong, J. P.	GSEC	Reeves, A. P.	NAG 5-3	2293
45	PURDUE UNIVERSITY	Gilbert, I. J.	1 ERC	Krause, P. C.	NSG 3237	2317
45	SO. ILL. UNIV-CARBONDI	Bankaitis, H. V.	1 ERC	Dodd, C. W.	NCC 3-7	2205
45	STANFORD UNIVERSITY	Leonard, A.	ARC	Buneman, O.	NCA 2-745906	1405
45	STANFORD UNIVERSITY	Pontious, C. I.	HD-RI	McCarthy, J.	NASW 2916	1394
45	STANFORD UNIVERSITY	Fitzmaurice, M. W.	HD-RI	Harris, S. I.	NSG 05-020-103	1439
45	SYRACUSE UNIVERSITY	Benz, H. I.	1 ARC	Kowel, S. I.	NSG 1602	3353
45	SYRACUSE UNIVERSITY	Segura, R.	1 ARC	Kowel, S. I.	NSG 1611	3354
45	TEXAS A&M UNIVERSITY	Farris, G. W.	JSC	Jean, B. R.	NAS 9-15311	3924
45	TEXAS A&M UNIVERSITY	Arndt, G. D.	JSC	Marout, A.	NAS 9-16088	3930
45	TEXAS A&M UNIVERSITY	Lytle, C. D.	1 ARC	Painter, J. H.	NSG 1374	3940
45	TEXAS A&M UNIVERSITY	Hearn, C. P.	1 ARC	Painter, J. H.	NSG 1639	3942
45	TEXAS A&M UNIVERSITY	Nowakowski, M.	MSIC	Parker, P. I.	NAS 8-33519	3918
45	TEXAS TECH UNIV	Day, J. I.	JSC	Portnov, W. M.	NAS 9 11162	3954
45	TEXAS TECH UNIV	Zaeffel, K. P.	1 ARC	Trost, T. I.	NAG 1-28	3953
45	TUSKEGEE INSTITUTE	Peacock, C. I.	MSIC	Doreswamy, C. V.	NAG 8-5	1028
45	TUSKEGEE INSTITUTE	Young, I. I.	MSIC	Doreswamy, C. V.	NSG 8038	1035
45	UNIV ALA-UNIVERSITY	Williams, D. I.	MSIC	Raburn, W. D.	NAS 8-33430	1073
45	UNIV CALIF-BERKELEY	Clark, I. A.	GSEC	Welch, W. J.	NAG 5-95	1485
45	UNIV OF CINCINNATI	Sundberg, G. R.	1 ERC	Henderson, H. I.	NSG 3022	3548
45	UNIV OF CINCINNATI	Riley, I. J.	1 ERC	Nevin, J. H.	NSG 3024	3549
45	UNIV OF FLORIDA	Walker, G. H.	1 ARC	Li, S. S.	NSG 1425	2067
45	UNIV OF FLORIDA	Godlewski, M. P.	1 ERC	Lindholm, F. A.	NSG 3018	2071
45	UNIV HOUSTON-HOUSTON	Horner, G. C.	1 ARC	Denman, I. D.	NSG 1603	3968
45	UNIV ILLINOIS-URBANA	Schaefer, D. H.	GSEC	Slotnick, D. I.	NAS 5 24275	2251
45	UNIV ILLINOIS-URBANA	Keating, I. Jr.	GSEC	Mittal, R.	NAS 5-25062	2252
45	UNIV ILLINOIS-URBANA	Abshire, J. B.	GSEC	Gardner, C. S.	NSG 5049	2262
45	UNIV OF KANSAS	Abbott, I. W.	1 ERC	Kelley, G. I.	NSG 4026	2417
45	UNIV OF KANSAS	Rango, A.	GSEC	Ulaby, I. I.	NAS 5-23777	2396
45	UNIV OF KANSAS	Crowell, W. I.	1 ARC	Moore, R. K.	NSG 1554	2408
45	UNIV MARYLAND-COL PK	Peake, H. J.	GSEC	Taylor, I. S.	NAS 5-25437	2539
45	UNIV MARYLAND-COL PK	Schy, A. A.	1 ARC	Wang, S. H.	NAG 1-27	2518
45	UNIV MARYLAND-COL PK	Benz, H. I.	1 ARC	Lin, H. C.	NSG 1468	2578
45	UNIV OF MASS-AMHERST	Swift, C. I.	1 ARC	McIntosh, R.	NAG 1-54	2824
45	UNIV MICH-ANN ARBOR	Migneault, G. I.	1 ARC	Meyer, I. I.	NSG 1306	2907
45	UNIV MO-COLUMBIA	Eggleston, T. W.	JSC	Tranter, W. H.	NAS 9-15477	2989
45	UNIV NEBRASKA-LINCOLN	Riley, I. J.	1 ERC	Woollam, I. A.	NAG 3-95	3023
45	UNIV OF NEW MEXICO	Haves, P. J.	1 ARC	Grannemann, W. W.	NAG 1-95	3133
45	UNIV OF NOTRE DAME	Seldner, K.	1 ERC	Sam, M. K.	NSG 3048	2327
45	UNIV OKLAHOMA-NORMAN	Hendricks, H. D.	1 ARC	Kahng, S. K.	NAG 1-14	3607
45	UNIV OF OXFORD	Hinton, D.	1 ARC	Unavailable	NASW 3301	4425
45	UNIV OF PENNSYLVANIA	Levine, D. M.	GSEC	Kritikos, H. N.	NAG 5-92	3743
45	UNIV OF PITTSBURGH	McBrien, I. I.	1 ERC	Hamilton, H. B.	NSG 3163	3767
45	UNIV SO CAROLINA-COI	Lowrey, D. O.	MSIC	Fellers, R. G.	NAS 8-28660	3802
45	UNIV OF SOUTHERN CAL	Secunde, R. R.	1 ERC	Maslowski, B. A.	NSG 3243	1802
45	UNIV TENNESSEE-KNOX	Allen, W.	GSEC	Rochelle, R. W.	NAS 5-24250	3826
45	UNIV TENNESSEE-KNOX	Craig, G. D.	MSIC	Gonzalez, R. C.	NAS 8-29271	3828
45	UNIV TENNESSEE-KNOX	Howell, J. I., Jr.	MSIC	Hung, J. C.	NAS 8-33604	3834
45	UNIV TEXAS-AUSTIN	Hirschmann, I.	GSEC	Vogel, W.	NAS 5-22576	3986
45	UNIV TEXAS-AUSTIN	Ippolito, I. J.	HD-EC	Vogel, W.	NASW 3388	4006
45	UNIV OF TOLEDO	Wythe, W.	1 ERC	Kwatra, S. C.	NAG 3-42	3567
45	UNIV OF TOLEDO	Merrill, W. C.	1 ERC	Leiminger, G. G.	NSG 3084	3572
45	UNIV OF TOLEDO	Lehtinen, B.	1 ERC	Leiminger, G. G.	NSG 3171	3576
45	UNIV OF TOLEDO	Gruber, R. P.	1 ERC	Stuart, I. A.	NSG 3281	3578
45	UNIV OF TORONTO	Aton, P. R.	1 ERC	Balman, K. G.	NSG 7647	4422
45	UNIV OF VIRGINIA	Kable, D. R.	GSEC	Wilson, S. G.	NAS 5-25634	4219

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45	UNIV OF VIRGINIA	Kahle, D. R.	GSFC	Wilson, S. G.	NAS 5-26011	4220
45	UNIV OF VIRGINIA	Loendorf, D. D.	LCRC	Aylor, J. H.	NAG 1-43	4208
45	UNIV OF VIRGINIA	Ashworth, B. R.	LCRC	Parrish, E. A.	NSG 1599	4229
45	VIRGINIA POLY INST	Hirschmann, E.	GSFC	Bostian, C. W.	NAS 5-22577	4256
45	VIRGINIA POLY INST	Montgomery, R. C.	LCRC	Vanlandingham, H. F.	NSG 1527	4280
45	VIRGINIA POLY INST	Watson, W. R.	LCRC	Nayfeh, A. H.	NSG 1573	4282
45	VIRGINIA POLY INST	Maslowski, E. A.	LCRC	Demerdash, N. A.	DE N 3-65	4239
45	VIRGINIA POLY INST	Kolecki, J. C.	LCRC	Lee, F. C.	NAG 3-81	4251
45	VIRGINIA POLY INST	Maslowski, E. A.	LCRC	Lee, F. C.	NAG 3-99	4252
45	VIRGINIA POLY INST	Kolecki, J. C.	LCRC	Lee, F. C.	NSG 3274	4293
45	WORCESTER POLY INST	Godlewski, M. P.	LCRC	Lanyon, H. P.	NSG 3137	2842
45	YALE UNIVERSITY	Schaefer, D.	GSFC	Barker, R. C.	NGI 07-004-005	1941
46	ALABAMA A&M UNIV	Humphries, W. R.	MSFC	Saha, H.	NSG 8041	1004
46	ARIZONA STATE UNIV	Fleming, D. P.	LCRC	Nelson, H. D.	NAG 3-6	1089
46	AUBURN UNIV-AUBURN	Decker, A. J.	LCRC	Swi, W. F.	NAG 3-103	1013
46	AUBURN UNIV-AUBURN	Shackleford, B. W.	MSFC	Sforzo, H.	NCA 8-132	1019
46	CALIF INST OF TECH	Gross, I. A.	MSFC	Acosta, A. J.	NAS 8-29313	1223
46	CALIF INST OF TECH	Gross, I. A.	MSFC	Costa, A. J.	NAS 8-33108	1224
46	CAL STATE U-EG BEACH	Johnson, D. A.	ARC	Modarress, D.	NCA 2-382001	1295
46	CAL STATE U-EG BEACH	Townsend, D. P.	LCRC	Akin, I.	NAG 3-20	1294
46	CAL STATE U-EG ANGLES	Ream, I. W.	LCRC	Gold, P. I.	NAG 3-73	1296
46	CAL STATE U-EG ANGLES	Pohly, J. G.	HD-LU	Manvi, R.	NASW 3257	1297
46	CAL STATE U-EG ANGLES	Pohly, J. G.	HD-LU	Gold, P. I.	NSG 7263	1299
46	CAL STATE U-NRTHRIDGE	Coe, H. H.	LCRC	Nypan, I. J.	NSG 3065	1301
46	CARNIGIE-MELLON UNIV	Cassidy, J. I.	LCRC	Sirignano, W. A.	NAG 3-21	3644
46	CARNIGIE-MELLON UNIV	Srawley, J. E.	LCRC	Swedlow, J. I.	NSG 3172	3647
46	CARNIGIE-MELLON UNIV	Cunningham, R. I.	LCRC	Hughes, W. F.	NSG 3202	3648
46	CASE WESTERN RESERVE	Ollendorf, S.	GSFC	Kamotani, Y.	NAS 5-24144	3426
46	CASE WESTERN RESERVE	Liebert, C. H.	LCRC	Dybbbs, A.	NAG 3-97	3413
46	CASE WESTERN RESERVE	Labus, I. M.	LCRC	Ostrack, S.	NAS 3-21046	3419
46	CASE WESTERN RESERVE	Anderson, D. N.	LCRC	Tlen, J. S.	NSG 3230	3448
46	CASE WESTERN RESERVE	Brown, W. E., Jr.	LCRC	Mendelson, A.	NSG 3251	3451
46	CLEMSON UNIV-CLEMSON	Poe, C. C., Jr.	LCRC	Goree, J. G.	NSG 1297	3795
46	CLEVELAND STATE UNIV	Townsend, D. P.	LCRC	Kasuba, R.	NAS 3-18547	3468
46	CLEVELAND STATE UNIV	Simoneau, R. J.	LCRC	Gorla, R. S.	NCC 3-3	3469
46	CLEVELAND STATE UNIV	Savino, J. M.	LCRC	Kasuba, R.	NCC 3-6	3470
46	CLEVELAND STATE UNIV	Lorenzo, C. F.	LCRC	Larson, V. H.	NSG 3257	3475
46	COLLEGE OF WM & MARY	Tanner, J. A.	LCRC	Anderson, C. M.	NAS 1-15965	4122
46	COLLEGE OF WM & MARY	Tanner, J. A.	LCRC	Anderson, C. M.	NCC 1-40	4127
46	COLORADO STATE UNIV	Smith, G. T.	LCRC	Smith, F. W.	NAG 3-40	1814
46	COLORADO STATE UNIV	Kerslake, W. R.	LCRC	Wilbur, P. J.	NGR 06-002-112	1830
46	GEORGIA INST OF TECH	Smith, G. T.	LCRC	Atturi, S. N.	NAG 3-38	2104
46	GEORGIA INST OF TECH	Jones, W. R.	LCRC	Winer, W. O.	NAG 3-77	2106
46	GEORGIA INST OF TECH	Wedeven, I. D.	LCRC	Winer, W. O.	NCC 3-14	2126
46	GEORGIA INST OF TECH	Jones, W. R.	LCRC	Winer, W. O.	NSG 3106	2136
46	HOWARD UNIVERSITY	Cygnarowicz, T. A.	GSFC	Watkins, C. B.	NAG 5-25	1996
46	IOWA STATE UNIV	Presley, I. I.	ARC	Cook, W. J.	NCA 2-340901	2338
46	IOWA STATE UNIV	Tanner, J. A.	LCRC	Baumgarten, J. R.	NSG 1605	2348
46	IOWA STATE UNIV	Strazisar, A. J.	LCRC	Okushi, T. H.	NGT 16-002-800	2343
46	MASS INST OF TECH	Chamis, C. C.	LCRC	Pian, T. H.	NAG 3-33	2695
46	MASS INST OF TECH	Cassidy, J. I.	LCRC	Heywood, J. B.	NSG 3245	2793
46	NO CAR A&T STATE U	Stuckey, J. M.	MSFC	Sharma, A. V.	NSG 8045	3376
46	NORTHWESTERN UNIV	Baker, C. E.	LCRC	Law, C. K.	NAG 3-53	2193
46	NORTHWESTERN UNIV	Wedeven, I. D.	LCRC	Cheng, H. S.	NCC 3-13	2200
46	NORTHWESTERN UNIV	Coy, J. J.	LCRC	Cheng, H. S.	NSG 3143	2203
46	OHIO STATE UNIV	Brown, G. V.	LCRC	Leissa, A. W.	NAG 3-36	3492
46	OLD DOMINION UNIV	Card, M. F.	LCRC	Ibrahim, S. R.	NSG 1649	4203
46	OREGON STATE UNIV	Spera, D. A.	LCRC	Thresher, R. W.	NAG 3-87	3622

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46	PENN STATE U-UNIV PK	Skorobatchkyi, M.	LERC	Lestz, S. S.	NAG 3-91	3692
46	PENN STATE U-UNIV PK	Wedeven, L. D.	LERC	Klaus, E. E.	NCC 3-9	3712
46	PENN STATE U-UNIV PK	Marer, C. J.	LERC	Faeth, G. M.	NSG 3306	3733
46	PRINCETON UNIVERSITY	Cassidy, J. F.	LERC	Sirignano, W. A.	NSG 3178	3091
46	PURDUE UNIVERSITY	Haggard, J.	LERC	Shifstad, J. G.	NSG 3258	2318
46	RENSSELAER POLY-NY	Kiraly, L. J.	LERC	Loewy, R. G.	NAG 3-37	3278
46	STANFORD UNIVERSITY	Gaugler, R. E.	LERC	Johnston, J. P.	NAG 3-3	1369
46	STANFORD UNIVERSITY	Gaugler, R. E.	LERC	Johnston, J. P.	NSG 3124	1466
46	STEVENS INST OF TECH	Kiraly, L. J.	LERC	Sisto, F.	NAG 3-47	3114
46	TENNESSEE TECH U	Priem, R. J.	LERC	Ventrice, M. B.	NGR 43-003-015	3819
46	TENNESSEE TECH U	Smith, A. D.	MSFC	Swim, W. B.	NAG 8-7	3818
46	TEXAS A&M UNIVERSITY	Garcia, F. F.	MSFC	Childs, D. W.	NAS 8-33716	3919
46	TRENTON STATE COL	Marek, C. J.	LERC	Feng, C. C.	NSG 3180	3116
46	TUSKEGEE INSTITUTE	Peoples, J. A.	MSFC	Sellers, J. P., Jr	NSG 8054	1036
46	UNIV OF AKRON	Chamis, C. C.	LERC	Padovan, J.	NAG 3-54	3532
46	UNIV OF AKRON	Coy, J. J.	LERC	Savage, M.	NAG 3-55	3533
46	UNIV ALA-HUNTSVILLE	Decher, R.	MSFC	Hendricks, J. B.	NAS 8-29316	1041
46	UNIV ALA-HUNTSVILLE	Urban, E. W.	MSFC	Karr, G. R.	NGT 01-002-083	1070
46	UNIV CALIF-BERKELEY	Mackelroy, R. D.	ARC	Auslander, D. M.	NCC 2-67	1531
46	UNIV CALIF-BERKELEY	Marek, C. J.	LERC	Daily, J. W.	NSG 3028	1550
46	UNIV CALIF-DAVIS	Pollack, J. B.	ARC	White, B. R.	NCA 2-180903	1569
46	UNIV CALIF-L ANGELES	Vorreiter, J. W.	ARC	Frederking, T. H.	NCC 2-64	1611
46	UNIV CALIF-L ANGELES	Burkhart, J. A.	LERC	Frederking, T. H.	NSG 3153	1629
46	UNIV CALIF-SAN DIEGO	Altman, R. L.	ARC	Middleman, S.	NCA 2-658001	1683
46	UNIV OF CINCINNATI	Monteith, J. H.	LARC	Brown, D. L.	NSG 1486	3547
46	UNIV OF CINCINNATI	Coy, J. J.	LERC	Huston, R. L.	NSG 3188	3552
46	UNIV OF CINCINNATI	Stubbs, R. M.	LERC	Tabakoff, W.	NSG 3218	3553
46	UNIV OF CONNECTICUT	Goldman, I. J.	LERC	Langston, L. S.	NSG 3238	1931
46	UNIV OF DELAWARE	Deaton, J. W.	LARC	Pipes, R. B.	NSG 1304	1951
46	UNIV ILLINOIS-CHICGO	Coy, J. J.	LERC	Litvin, F. L.	NAG 3-48	2242
46	UNIV OF KANSAS	Hirschbein, M. S.	LERC	Dodds, R. H.	NAG 3-32	2387
46	UNIV OF KANSAS	Straight, D. M.	LERC	Schweikhard, W. G.	NAG 3-85	2389
46	UNIV OF KENTUCKY	Cochran, T. H.	LERC	Altenkirch, R. A.	NSG 3114	2435
46	UNIV OF LOUISVILLE	Hendricks, R. C.	LERC	Dressman, J. B.	NSG 3200	2441
46	UNIV OF MASS AMHERST	Wedeven, L. D.	LERC	Wilson, W. R.	NCC 3-10	2828
46	UNIV OF MIAMI	Bland, R. A.	KSC	Lee, S. S.	NAS10-9410	2084
46	UNIV MICH-ANN ARBOR	Wedeven, L. D.	LERC	Ludema, K. C.	NCC 3-11	2897
46	UNIV SO CAROLINA-COL	Decker, A. J.	LARC	Ranson, W. F.	NAG 3-75	3801
46	UNIV SOUTHWESTERN LA	Humphries, W. R.	MSFC	Bankston, I. D.	NAS 8-33765	2467
46	UNIV OF TOLEDO	Cunningham, R. E.	LERC	Keith, T. E.	NSG 3156	3575
46	UNIV OF VIRGINIA	Kascak, A. F.	LERC	Barrett, L. E.	NSG 3177	4232
46	UNIV OF VIRGINIA	Clark, W. D.	MSFC	Gunter, F. J.	NAS 8-31951	4222
46	UNIV OF WASHINGTON	Wieting, A. R.	LARC	Emery, A. F.	NAG 1-41	4301
46	UNIV OF WASHINGTON	Hall, R. C.	LERC	Wolak, J.	NAG 3-7	4302
46	UNIV OF WASHINGTON	Valentine, H. H.	LERC	Martini, W. R.	NSG 3194	4335
46	VIRGINIA POLY INST	Hoffman, E. L.	LARC	Stinchcomb, W. W.	NSG 1254	4273
47	ALABAMA A&M UNIV	Bannister, T. C.	MSFC	Lal, R. B.	NAS 8-32945	1001
47	ARIZONA STATE UNIV	Reeves, E. A.	MSFC	Wagner, J. B.	NAS 8-32937	1098
47	ATLANTA UNIVERSITY	Bryan, C. J.	KSC	Korda, E. J.	NAG10-3	2092
47	CASE WESTERN RESERVE	Gray, H. R.	LERC	Ebert, L. J.	NAG 3-30	3405
47	CASE WESTERN RESERVE	Thompson, R. L.	LERC	Mendelson, A.	NAG 3-39	3406
47	CASE WESTERN RESERVE	Halford, G. R.	LERC	Manson, S. S.	NAG 3-46	3407
47	CASE WESTERN RESERVE	Smialek, J. L.	LERC	Ebert, L. J.	NAG 3-49	3408
47	CASE WESTERN RESERVE	Smialek, J. L.	LERC	Ebert, L. J.	NAG 3-58	3409
47	CASE WESTERN RESERVE	Fortini, A.	LERC	Dybbys, A.	NSG 3040	3435
47	CASE WESTERN RESERVE	Scheuermann, C. M.	LERC	Ebert, L. J.	NSG 3246	3450
47	CASE WESTERN RESERVE	Gedwill, M. A.	LERC	Ebert, L. J.	NSG 3252	3452
47	CASE WESTERN RESERVE	Gideon, L.	LERC	Kamotani, Y.	NSG 3268	3453

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47	CASE WESTERN RESERVE	Souey, J. S.	TERC	Geil, K. H.	NSG 3289	3460
47	CASE WESTERN RESERVE	Smialek, J. L.	TERC	Halloran, J. W.	NSG 3291	3461
47	CASE WESTERN RESERVE	Hirschberg, M. H.	TERC	Powell, N. L.	NSG 7035	3463
47	CLEMSON UNIV-CLEMSON	Nunes, A. C.	MSFC	Thompson, R. G.	NAS 8-33524	3794
47	CLEVELAND STATE UNIV	Nary, A.	TERC	Hemann, J. H.	NAG 3-106	3466
47	CLEVELAND STATE UNIV	Herbell, T. P.	TERC	Yeh, H. C.	NSG 3259	3476
47	COLORADO STATE UNIV	Kerslake, W. R.	TERC	Wilbur, P. J.	NAG 3-25	1812
47	COLUMBIA UNIVERSITY	Stephens, J. R.	TERC	Tien, J. K.	NAG 3-57	3161
47	CORNELL UNIVERSITY	Goldstein, M. F.	TERC	Ruoff, A. L.	NSG 7488	3236
47	DARTMOUTH COLLEGE	Klopp, W. D.	TERC	Schulson, E. M.	NAG 3-13	3038
47	DARTMOUTH COLLEGE	Bill, R. C.	TERC	Kennedy, E. E., Jr.	NSG 3253	3042
47	DREXEL UNIVERSITY	Poe, C. C., Jr.	LARC	Awerbuch, J.	NSG 1606	3662
47	DREXEL UNIVERSITY	Glasgow, T. K.	TERC	Apelman, D.	NAG 3-14	3653
47	DREXEL UNIVERSITY	Grimes, H. H.	TERC	Koczak, M. J.	NSG 3128	3665
47	GEORGE WASHINGTON U	Swann, R. T.	LARC	Liebowitz, H.	NCC 1-36	1977
47	GEORGE WASHINGTON U	Roderick, G. I.	LARC	Liebowitz, H.	NSG 1289	1986
47	GEORGE WASHINGTON U	O'Brien, T. K.	LARC	Yang, J. N.	NSG 1604	1989
47	GEORGIA INST OF TECH	Johnston, M. H.	MSFC	Brown, J. I.	NAS 8-33438	2121
47	HOWARD UNIVERSITY	Clark, R. K.	LARC	Reiss, R.	NAG 1-23	1994
47	KENT STATE UNIV-KENT	Wintucky, T. G.	TERC	Johnson, D. I.	NSG 3159	3481
47	LEHIGH UNIVERSITY	Reynolds, M. A.	JSC	Vanderhoff, J. W.	NAS 9-16071	3675
47	MASS INST OF TECH	Kostuk, T.	GSFC	Spears, D. I.	NAS 5-25717	2725
47	MASS INST OF TECH	Price, H. L.	LARC	McGarry, E. J.	NSG 1504	2772
47	MASS INST OF TECH	Weinberg, I.	TERC	Gatos, H. C.	NSG 3017	2783
47	MASS INST OF TECH	Scheuermann, C. M.	TERC	Flemings, M. C.	NSG 3046	2785
47	MASS INST OF TECH	Vary, A.	TERC	Williams, J. H., Jr.	NSG 3210	2791
47	MASS INST OF TECH	Reeves, E. A.	MSFC	Uhlmann, D. R.	NAS 8-31350	2732
47	MASS INST OF TECH	Vontiesenhausen, G. I.	MSFC	Miller, R. H.	NAS 8-32925	2733
47	MASS INST OF TECH	Vitale, J. A.	HD-ET	Gatos, H. C.	NSG 7331	2809
47	MASS INST OF TECH	Vitale, J. A.	HD-ET	Szekely, J.	NSG 7645	2820
47	MICHIGAN STATE UNIV	Halford, G. R.	TERC	Martin, J. I.	NAG 3-51	2845
47	MICHIGAN TECH UNIV	Barrett, C. A.	TERC	Heckel, R. W.	NSG 3215	2853
47	NO CAR A&T STATE U	Buckley, J. D.	LARC	Botros, B. M.	NSG 1516	3373
47	NO CAROLINA STATE U	Long, E. R., Jr.	LARC	Memory, J. D.	NSG 1463	3392
47	OHIO STATE UNIV	Bill, R. C.	TERC	Black, J. I.	NSG 3164	3518
47	OHIO STATE UNIV	Vary, A.	TERC	Fu, L. S.	NSG 3269	3521
47	OLD DOMINION UNIV	Lisagor, W. B.	LARC	Cupschalk, S. G.	NSG 1521	4194
47	PENN STATE U-UNIV PK	Fripp, A. L.	LARC	White, W. B.	NSG 1387	3721
47	PENN STATE U-UNIV PK	Barranger, J. P.	TERC	Bradt, R. C.	NAG 3-68	3691
47	PURDUE UNIVERSITY	Stephens, J. R.	TERC	Radavich, J. I.	NAG 3-59	2290
47	RENSSELAER POLY-NY	Dicus, D. L.	LARC	Ansell, G. S.	NSG 1510	3291
47	RENSSELAER POLY-NY	Miner, R. V.	TERC	Duquette, D. J.	NAG 3-22	3277
47	RENSSELAER POLY-NY	Davidson, M. C.	MSFC	Wiedmann, H.	NAS 8-26146	3279
47	RENSSELAER POLY-NY	Bannister, T. C.	MSFC	Gucksmann, M. I.	NAS 8-32425	3280
47	RENSSELAER POLY-NY	Schaefer, D. A.	MSFC	Wiedemeier, H.	NAS 8-32936	3283
47	RENSSELAER POLY-NY	Greenfield, M. A.	HD-RT	Wiberly, S. I.	NGL 33-018-003	3288
47	RICE UNIVERSITY	Berge, R.	MSFC	Margrave, J.	NAS 8-33199	3879
47	SAN JOSE STATE UNIV	Ricciello, S. R.	ARC	Anderson, R. N.	NCC 2-3	1335
47	SAN JOSE STATE UNIV	Mansfield, J.	ARC	Holmstrom, F.	NCC 2-80	1349
47	STANFORD UNIVERSITY	Poppa, H.	ARC	Heinemann, K.	NCA 2-745901	1404
47	SYRACUSE UNIVERSITY	Hayes, P. J.	LARC	Schroder, K.	NSG 1654	3355
47	TEXAS A&M UNIVERSITY	Thompson, R. L.	TERC	Haisler, W. I.	NAG 3-31	3906
47	TUSKEGEE INSTITUTE	Titran, R. H.	TERC	Ramirez, R. P.	NSG 3154	1033
47	UNIV ALA-HUNTSVILLE	Whitaker, A. F.	MSFC	Davis, J. H.	NAS 8-33377	1052
47	UNIV ALA-HUNTSVILLE	Bass, B. G.	MSFC	Hendricks, J. B.	NAS 8-33542	1057
47	UNIV ALA-HUNTSVILLE	Lacy, L. I.	MSFC	Davis, J. H.	NAS 8-33548	1058
47	UNIV OF ARIZONA	Thompson, R. L.	TERC	Wirsching, P. H.	NAG 3-41	1113
47	UNIV CALIF-BERKELEY	Campbell, C. F.	GSFC	Price, P. B.	NAS 5-25453	1512

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47	UNIV CALIF-L ANGELES	Ricciello, S. R.	ARC	Mackenzie, J. D.	NCC 2-7	1610
47	UNIV CALIF-L ANGELES	Barranger, J. P.	IFRC	Mackenzie, J. D.	NAG 3-69	1586
47	UNIV CALIF-L ANGELES	Williams, J. R.	MSFC	Bunshah, R. F.	NAS 8-33115	1603
47	UNIV CALIF-S BARBARA	Nelson, H. G.	ARC	Shanabarger, M. R.	NCC 2-63	1749
47	UNIV OF CENTRAL FLA	Bianca, C.	MSFC	Carroll, W. I.	NAS 8-32835	2042
47	UNIV OF CINCINNATI	Miner, R. V.	IFRC	Antolovich, S. D.	NSG 3147	3551
47	UNIV OF CINCINNATI	Hirschberg, M. H.	IFRC	Antolovich, S. D.	NSG 3263	3554
47	UNIV OF DAYTON	Gourash, F.	IFRC	Sirnat, K. J.	DELN 3-18	3556
47	UNIV OF DAYTON	McDaniels, D. I.	IFRC	Bless, S. J.	NAS 3-22353	3559
47	UNIV OF DELAWARE	Vernon, R. W.	IFRC	Birchall, C. I.	NSG 3184	1953
47	UNIV OF FLORIDA	Dutta, S.	IFRC	Hench, L. I.	NSG 3254	2072
47	UNIV HOUSTON-HOUSTON	Viegas, J. R.	ARC	Hussain, A. K.	NSG 2337	3969
47	UNIV OF IOWA	Rummier, D. R.	IFRC	Wu, H. C.	NSG 1499	2371
47	UNIV OF KANSAS	Howell, W. F.	IFRC	Reese, C. D.	NSG 281	2406
47	UNIV OF MIAMI	Usagor, W. B.	IFRC	Poteat, L. I.	NSG 1283	2086
47	UNIV MICH-ANN ARBOR	Jones, J. I.	IFRC	Felbeck, D. K.	NAS 1-15333	2865
47	UNIV MICH-ANN ARBOR	Fichter, W. B.	IFRC	Felbeck, D. K.	NGR 23-005-528	2904
47	UNIV MICH-ANN ARBOR	Lauver, R. W.	IFRC	Yeh, G. S.	NSG 3192	2913
47	UNIV MINN-MNPLS-ST PAUL	Leadbetter, S. A.	IFRC	Plunkett, R.	NAG 1-99	2931
47	UNIV OF NEW ORLEANS	Wood, G. M.	IFRC	Loup, G. I.	NSG 1460	2465
47	UNIV OREGON-HILTHCTR	Bannister, T. C.	MSFC	Brooks, D. I.	NAS 8-33575	3641
47	UNIV OF PITTSBURGH	Kohl, F. J.	IFRC	Birks, N.	NAG 3-44	3754
47	UNIV OF PITTSBURGH	Kohl, F. J.	IFRC	Meier, G. H.	NSG 3214	3768
47	UNIV OF SOUTHERN CAL	Conway, F. J.	IFRC	Kroger, F. A.	NSG 1536	1800
47	UNIV TEXAS-EL PASO	Brandhorst, H. W., Jr.	IFRC	Brient, S. J.	NSG 3146	4065
47	UNIV OF TORONTO	Baker, D. J.	IFRC	Tennyson, R. C.	NSG 7409	4421
47	UNIV OF UTAH	Fripp, A. I.	IFRC	Rosenberger, F. I.	NSG 1534	4092
47	UNIV OF VIRGINIA	Fripp, A. I.	IFRC	Jesser, W. A.	NSG 1652	4230
47	UNIV OF VIRGINIA	Behrendt, D. R.	IFRC	Wawner, F. I., Jr.	NSG 3242	4233
47	UNIV OF WASHINGTON	Greenfield, M. A.	HD-RI	Mueller, J. I.	NGI 48-002-004	4326
47	UNIV OF WYOMING	Dicarlo, J. A.	IFRC	Adams, D. I.	NSG 3217	4418
47	UNIV OF WYOMING	Reeves, F. A.	MSFC	Saunders, C.	NAS 8-32486	4415
47	VANDERBILT UNIVERSITY	Nichols, R. I.	MSFC	Kinser, D. I.	NAS 8-32695	3848
47	VIRGINIA POLY INST	Nelson, H. G.	ARC	Louthan, M. R.	NAG 2-3	4248
47	VIRGINIA POLY INST	Nelson, H. G.	ARC	Brinson, H. I.	NCC 2-71	4268
47	VIRGINIA POLY INST	Nelson, H. G.	ARC	Brinson, H. I.	NSG 2038	4288
47	VIRGINIA POLY INST	Price, H. I.	IFRC	Wilkes, G. I.	NAG 1-78	4244
47	VIRGINIA POLY INST	Tenney, D. R.	IFRC	Houska, C. R.	NSG 1470	4278
47	VIRGINIA POLY INST	Everett, R. A.	IFRC	Morris, D. H.	NSG 1571	4281
47	VIRGINIA POLY INST	Baker, D. J.	IFRC	Hyer, M. W.	NSG 1621	4287
47	VIRGINIA POLY INST	Stephens, J. R.	IFRC	Louthan, M. R.	NAG 3-78	4250
47	VIRGINIA POLY INST	Wintucky, F. G.	IFRC	Dwight, D. W.	NSG 3204	4291
47	YALE UNIVERSITY	Kohl, F. J.	IFRC	Rosner, D. I.	NSG 3107	1944
49	AUBURN UNIV AUBURN	Decker, A. J.	IFRC	Swinson, W. I.	NSG 3233	1021
49	AUBURN UNIV AUBURN	Daniel, C. C.	MSFC	Flood, C. A., Jr.	NSG 8047	1022
49	CALIF INST OF TECH	Carter, C. H.	HD-LU	Albee, A. I.	NGI 05-003-790	1247
49	CARNegie-MELLON UNIV	Pohly, J. G.	HD-LU	Cathie, W.	NGI 39-087-790	3646
49	CASI WESTERN RESERVE	Doolin, B. I.	ARC	Martin, C. I.	NSG 2384	3234
49	CASI WESTERN RESERVE	Seasholtz, R. G.	IFRC	Edwards, R. V.	NAG 3-2	3402
49	CASI WESTERN RESERVE	Smetana, J.	IFRC	Collins, R. I.	NAS 3-21365	3420
49	CASI WESTERN RESERVE	Wintucky, F. G.	IFRC	Bahnuk, I.	NAS 3-21946	3421
49	CASI WESTERN RESERVE	Fanner, H. G.	IFRC	Dybbis, A.	NCC 3-8	3430
49	CASI WESTERN RESERVE	Weigand, A. J.	IFRC	Gibbons, D. I.	NSG 3126	3438
49	CASI WESTERN RESERVE	Carter, C. H.	HD-LU	Prabhu, J. M.	NGI 36-027-011	3432
49	CASI WESTERN RESERVE	Pohly, J. G.	HD-LU	Chenelle, D. W.	NGI 36-027-790	3433
49	CITY COLLEGE OF N.Y.	Braun, W. H.	IFRC	Weinstein, H.	NSG 3174	3153
49	CLEVELAND STATE UNIV	Beach, R. I.	ARC	Donoghue, J. I.	NAG 3-84	3465
49	CLEVELAND STATE UNIV	Beach, R. I.	IFRC	Burghart, J. H.	NSG 3223	3474

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49	CLEVELAND STATE UNIV	Pohly, J. G.	HD-LU	Bennett, W. R.	NGT 36-025-780	3471
49	COLLEGE OF WM & MARY	Finelli, G. B.	LARC	Schaefer, M. K.	NSG 1625	4132
49	COLUMBIA UNIVERSITY	Stephens, D. G.	LARC	Galanter, E.	NSG 1550	3183
49	DE ANZA COLLEGE	Lum, H.	ARC	Frederick, V.	NCC 2-31	1306
49	DREXEL UNIVERSITY	Meyer, G.	ARC	Calise, A. J.	NAG 2-8	3650
49	DUKE UNIVERSITY	Hayduk, R. J.	LARC	Melosh, R. J.	NSG 1647	3365
49	FORT LEWIS COLLEGE	Kruger, R.	GSFC	Williams, R. I.	NAG 5-1	1847
49	GEORGE WASHINGTON U	Morakis, J. C.	GSFC	Helgert, H. J.	NSG 5109	1990
49	GEORGIA INST OF TECH	Vykukal, H. C.	ARC	Olson, L. H.	NSG 2356	2133
49	GEORGIA INST OF TECH	Reed, B.	MSFC	Pierce, A. D.	NAS 8-33093	2120
49	HOWARD UNIVERSITY	Hui, P. S.	GSFC	Choudhury, A. K.	NAS 5-24251	2003
49	HOWARD UNIVERSITY	Chapman, J. W.	GSFC	Cox, E. L.	NAS 5-29	2006
49	HOWARD UNIVERSITY	Chapman, J. W.	GSFC	Cox, E. L.	NAS 5-91	2007
49	HOWARD UNIVERSITY	Hammer, H. A.	LARC	Bainum, P. M.	NAS 1414	2011
49	IOWA STATE UNIV	Pollack, J. B.	ARC	Iversen, J. D.	NAS 2-340802	2337
49	IOWA STATE UNIV	Fralich, R. W.	LARC	McDaniel, T. J.	NSG 1372	2345
49	LAFAYETTE COLLEGE	Gainer, P. A.	LARC	Guy, W. J.	NAG 1-45	3672
49	LEHIGH UNIVERSITY	Chamis, C. C.	LARC	Sih, G. C.	NSG 3179	3682
49	LINCOLN UNIV-PA	Mundy, J. R.	GSFC	Williams, W.	NCA 5-98	3685
49	MASS INST OF TECH	Stewart, J. D.	ARC	Young, T. R.	NAG 2-12	2691
49	MASS INST OF TECH	Doolin, B. I.	ARC	Athans, M.	NGT 22-009-124	2747
49	MASS INST OF TECH	Burkhart, J. A.	LARC	Marston, P. G.	NAG 3-100	2697
49	MASS INST OF TECH	Chamis, C. C.	LARC	McGarry, T. J.	NSG 3044	2784
49	MASS INST OF TECH	Braun, W. H.	LARC	Kerrebrock, J. L.	NSG 3187	2789
49	MISSISSIPPI STATE U	Sims, J. I.	MSFC	Kassner, J. I., Jr	NAS 8-32912	2966
49	MORGAN STATE UNIV	Friedman, D. S.	GSFC	Taylor, J. H.	NAS 5-23558	2511
49	NEW MEX STATE UNIV	Pincus, B. R.	GSFC	Lawrence, H.	NAS 5-24241	3124
49	NEW MEX STATE UNIV	Pincus, B. R.	GSFC	Lawrence, H.	NAS 5-26332	3125
49	NEW MEX STATE UNIV	West, W. W.	WFC	Gammill, B. G.	NAS 6-3087	3126
49	NEW YORK UNIVERSITY	Tabus, T. I.	LARC	Ting, L.	NSG 3059	3261
49	NO CAR A&T STATE U	Carter, C. H.	HD-LU	Abu-saba, E. G.	NGT 34-012-800	3371
49	OHIO STATE UNIV	Doolin, B. I.	ARC	Wyman, B.	NAG 2-34	3490
49	OHIO STATE UNIV	Bowles, K. J.	LARC	Smith, E. I.	NSG 1235	3519
49	OKLAHOMA STATE UNIV	West, W. W.	WFC	Buck, R. I.	NAS 6-2970	3594
49	OKLAHOMA STATE UNIV	Boykin, E. M.	WFC	Eike, R. M.	NAS 6-3103	3595
49	OKLAHOMA STATE UNIV	Carr, R. I.	WFC	Roth, L. O.	NSG 6018	3599
49	OLD DOMINION UNIV	Hamer, H. A.	LARC	Goghia, G. I.	NAG 1-102	4161
49	OLD DOMINION UNIV	Wieting, A. R.	LARC	Thornton, E. A.	NSG 1321	4180
49	OLD DOMINION UNIV	Sutton, K.	LARC	Triani, S. N.	NSG 1500	4191
49	OLD DOMINION UNIV	Carter, C. H.	HD-LU	McRee, G. J.	NGT 47-003-028	4174
49	OLD DOMINION UNIV	Carter, C. H.	HD-LU	Goghia, G. I.	NGT 47-003-029	4175
49	PURDUE UNIVERSITY	Pohly, J. G.	HD-LU	Holec, D. I.	NGT 15-005-790	2307
49	RENSSELAER POLY-NY	Gevartier, W. B.	HD-RI	Yerazunis, S.	NSG 7369	3298
49	RICE UNIVERSITY	Guttman, C.	MSFC	Few, A. A.	NAS 8-33023	3878
49	SOUTHEASTN OKLA STA U	Bivins, R. G.	HD-ET	Oliver, R.	NASW 3180	3601
49	STANFORD UNIVERSITY	Erzberger, H.	ARC	Bryson, A. I.	NGT 05-020-007	1436
49	STANFORD UNIVERSITY	Wolfe, J. H.	ARC	Peterson, A. M.	NSG 2121	1459
49	STANFORD UNIVERSITY	Carter, C. H.	HD-LU	Adams, J. I.	NGT 05-020-409	1454
49	STANFORD UNIVERSITY	Carter, C. H.	HD-LU	Bershadar, D.	NGT 05-020-412	1455
49	TENNESSEE STATE UNIV	Pohly, J. G.	HD-LU	Malkani, M. J.	NGT 43-014-750	3816
49	TENNESSEE STATE UNIV	Pohly, J. G.	HD-LU	Malkani, M. J.	NGT 43-014-790	3817
49	TEXAS A&M UNIVERSITY	Carter, C. H.	HD-LU	Norton, D. J.	NGT 44-001-800	3937
49	TEXAS SOUTHERN UNIV	Davis, E. I.	JSC	Blackwell, H. I.	NAG 9-6	3952
49	TUSKEGEE INSTITUTE	Pohly, J. G.	HD-LU	Dybezak, Z. W.	NGT 01-005-750	1031
49	TUSKEGEE INSTITUTE	Pohly, J. G.	HD-LU	Dybezak, Z. W.	NGT 01-005-780	1032
49	UNIV ALA-HUNTSVILLE	Carter, C. H.	HD-LU	Karr, G. R.	NGT 01-008-021	1071
49	UNIV ALA-UNIVERSITY	Carter, C. H.	HD-LU	Barfield, B. I.	NGT 01-002-099	1075
49	UNIV OF ARIZONA	Wagnon, F. W.	MSFC	Krider, E. P.	NAS 8-33718	1140

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49	UNIV OF ARIZONA	Wagnor, F. W.	MSFC	Wolfe, W. L.	NAS 8-33720	1141
49	UNIV CALIF-L ANGELES	Sobieski, J.	LARC	Schmit, L. A., Jr.	NSG 1490	1625
49	UNIV CALIF-S BARBARA	Jones, H. W.	ARC	Estes, J. I.	NCC 2-43	1748
49	UNIV OF CINCINNATI	Waltz, J.	LARC	Nayfeh, A. H.	NSG 1185	3546
49	UNIV OF FLORIDA	Nelsen, L. D.	GSFC	Gillen, A. F.	NAS 5-22908	2052
49	UNIV HOUSTON-HOUSTON	Carter, C. H.	HD-LU	Huang, C. J.	NGT 44-005-115	3965
49	UNIV OF KANSAS	Saltzman, E. J.	DFRC	Muirhead, V. U.	NSG 4023	2416
49	UNIV MARYLAND-COL PK	Chapman, J. W.	GSFC	Wockenfuss, W. A.	NCA 5-28	2555
49	UNIV MARYLAND-COL PK	Degnan, J. J.	GSFC	Hochuli, U. F.	NSG 5042	2582
49	UNIV MARYLAND-COL PK	McGarry, E. I.	GSFC	Bash, V. R.	NSG 5123	2583
49	UNIV MARYLAND-COL PK	Carter, C. H.	HD-LU	Emad, F. P.	NGT 21-002-254	2572
49	UNIV MICH-ANN ARBOR	Fish, R. H.	ARC	Springer, G. S.	NSG 2333	2911
49	UNIV OF NEW MEXICO	Pohly, J. G.	HD-LU	Eiter, D. M.	NGT 32-004-770	3140
49	UNIV OF NOTRE DAME	Doolin, B. F.	ARC	Sain, M. K.	NAG 2-35	2324
49	UNIV OKLAHOMA-NORMAN	Pohly, J. G.	HD-LU	Thomas, G.	NGT 37-003-760	3616
49	PUERTO RICO-MAYAGZ	Lopez, J. J.	GSFC	Cabassa, H. D.	NAS 5-25844	4420
49	UNIV OF SANTA CLARA	Carter, C. H.	HD-LU	Healy, T. J.	NGT 05-017-998	1784
49	UNIV STHN COLORADO	Meyer, G.	ARC	Dunn, W. R.	NAG 2-2	1973
49	UNIV STHN COLORADO	Meyer, G.	ARC	Dunn, W. R.	NCC 2-91	1925
49	UNIV SO MISSISSIPPI	Whitley, S. I.	NSTI	Brundage, W. G.	NAS13-95	2983
49	UNIV TENNESSEE-KNOX	Reynolds, L. A.	NSC	Speckhart, F. H.	NAS10-9834	3837
49	UNIV TENNESSEE-KNOX	Stanger, P. J.	FFRC	Dicks, J. B.	NSG 32 4	3844
49	UNIV TEXAS-ARLINGTON	Smith, J. M.	FFRC	Wilson, D. R.	NSG 3255	3980
49	UNIV TEXAS-AUSTIN	Richard, R. R.	JSC	Hartwig, W. H.	NAS 9-14491	3997
49	UNIV TEXAS-AUSTIN	Pels, G. I.	JSC	Tucker, A. J.	NAS 9-15217	3998
49	UNIV TEXAS-AUSTIN	Kiefling, L. A.	MSFC	Craig, R. C.	NAS 8-33980	3995
49	UNIV OF TOLEDO	Finnegan, P. M.	FFRC	Keitt, T. G.	NCC 3-5	3571
49	UNIV OF TOLEDO	Labus, J. I.	FFRC	Dewitt, K. J.	NSG 3121	3573
49	UNIV OF VIRGINIA	Lamb, G. M.	GSFC	Mattauch, R. J.	NAS 5-24218	4218
49	UNIV OF VIRGINIA	Loendorf, D. D.	LARC	Ortega, J. M.	NAG 1-46	4209
49	UNIV OF VIRGINIA	Conner, D. W.	LARC	Kuhlthau, A. R.	NAS 1-14909	4215
49	VIRGINIA POLY INST	Davis, J. D., Jr.	LARC	Herakovich, C. T.	NCC 1-15	4266
49	WASHINGTON UNIVERSITY	Giles, G. I.	LARC	Szabo, B. A.	NSG 1640	3012
51	ALABAMA A&M UNIV	Nerren, B. H.	MSFC	Neugebauer, M. G.	NSG 8067	1010
51	ALCORN STATE UNIV	Wolverton, B. C.	NSTI	Latif, A.	NSG 8036	2960
51	CAL STATE U-L ANGELES	Hochstein, L. I.	ARC	Andreoli, A. J.	NSG 2199	1298
51	CASI WESTERN RESERVE	Halstead, T. W.	HD-SB	Keefe, J. R.	NAGW 83	3418
51	COLORADO STATE UNIV	Holton, I. M.	ARC	Jordan, J. P.	NSG 2232	1834
51	CORNELL UNIVERSITY	Halstead, T. W.	HD-SB	Leopold, A. C.	NAGW 3	3201
51	CORNELL UNIVERSITY	Young, R. S.	HD-SB	MacDonald, R. I.	NSG 7235	3232
51	CORNELL UNIVERSITY	Devincenzi, D. I.	HD-SB	Gibson, J.	NSG 7529	3238
51	EMORY UNIVERSITY	Rasmussen, D. N.	ARC	Popovic, V. P.	NAS 2-10527	2095
51	EMORY UNIVERSITY	Holton, I. M.	ARC	Popovic, V. P.	NGI 11-001-009	2097
51	GEORGIA INST OF TECH	Young, R. S.	HD-SB	Hubbard, J. S.	NSG 7069	2142
51	HARDIN-SIMMONS UNIV	Young, R. S.	HD-SB	Foster, T. I.	NGR 44-095-001	3863
51	HARVARD UNIVERSITY	Ferandin, J.	ARC	Moore-ede, M. C.	NAS 2-10547	2642
51	INDIANA U-BLOOMINGTON	Halstead, T. W.	HD-SB	Malacinski, G. M.	NAGW 60	2276
51	MASS INST OF TECH	MacElroy, R. D.	ARC	Rich, A.	NCA 2-425801	2 39
51	MASS INST OF TECH	Dauntun, N. G.	ARC	Bizzi, I.	NGR 22-009-798	2765
51	MASS INST OF TECH	Dauntun, N. G.	ARC	Unavailable	NGR 22-009-826	2766
51	MASS INST OF TECH	Devincenzi, D. I.	HD-SB	Biemann, K.	NGR 22-009-005	2753
51	MICHIGAN STATE UNIV	Halstead, T. W.	HD-SB	Bandurski, R. S.	NAGW 97	2848
51	OHIO STATE UNIV	Mehler, W. R.	ARC	Lim, D. J.	NSG 2220	3516
51	OHIO UNIVERSITY	Halstead, T. W.	HD-SB	Jaffe, M. J.	NSG 7352	3530
51	OKLAHOMA STATE UNIV	Devincenzi, D. I.	HD-SB	Vishniac, H. S.	NAGW 26	3592
51	PAST U-HERSHLEY MED	Ferandin, J.	ARC	Severs, W. B.	NAS 2-10521	3686
51	PENN STATE U-UNIV PK	Morrison, D. R.	JSC	Hymet, W. C.	NAS 9-15566	3708
51	PRINCETON UNIVERSITY	Halstead, T. W.	HD-SB	Jacobs, W. P.	NSG 7280	3100

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51	PURDUE UNIVERSITY	Ferandin, J	ARC	Mitchell, C A	NAS 2-10514	2296
51	PURDUE UNIVERSITY	Halstead, T W	HD-SB	Mitchell, C A	NSG 7278	2323
51	RENSSELAER POLY-NY	Young, R S	HD-SB	Pope, D. H.	NSG 7345	3297
51	RICE UNIVERSITY	Ferandin, J	ARC	Campbell, J.	NAS 2-10519	3874
51	RICE UNIVERSITY	Halstead, T W	HD-SB	Ward, C H	NASW 3164	3887
51	ROCKEFELLER UNIV	MacElroy, R D	ARC	Loew, G. H	NCA 2-630001	3299
51	ROCKEFELLER UNIV	Lawless, J. G	ARC	Loew, G. H	NCA 2-630901	3300
51	ROCKEFELLER UNIV	Daunton, N. G	ARC	Wilson, V J	NSG 2380	3301
51	SAN FRAN STATE UNIV	Oyama, J.	ARC	Kakihana, R.	NCC 2-25	1319
51	SAN FRAN STATE UNIV	Devincenzi, D L	HD-SB	Orenberg, J B	NSG 7512	1322
51	SAN JOSE STATE UNIV	Daunton, N G	ARC	Ginsberg, R	NCA 2-675002	1324
51	SAN JOSE STATE UNIV	Oyama, V I	ARC	Ling, A. C	NCA 2-675008	1329
51	SAN JOSE STATE UNIV	Winget, C M	ARC	Holley, D C	NCA 2-675903	1332
51	SAN JOSE STATE UNIV	Deal, P H	ARC	Haight, R D	NCA 2-675907	1333
51	SAN JOSE STATE UNIV	Suri, K P	ARC	Fox, R A	NCC 2-72	1347
51	STANFORD UNIVERSITY	Ferandin, J	ARC	Reaven, G M	NAS 2-10512	1375
51	STANFORD UNIVERSITY	Goldwater, D	ARC	Debusk, R F	NCA 2-745911	1408
51	STANFORD UNIVERSITY	Young, R S	HD-SB	Lederberg, J	NGR 05-020-004	1446
51	STATE UNIV NY-ALBANY	Nolte, R W	JSC	Sulzman, F M	NAS 9-15975	3307
51	STATE UNIV NY-BINGHAMTON	Sandler, H	ARC	Sulzman, F M	NGT 33-188-800	3319
51	STATE UNIV NY-BUFFALO	MacElroy, R D	ARC	Egan, J T	NCA 2-750001	3349
51	STATE UNIV NY-STONY BROOK	Rasmussen, D N	ARC	Krikorian, A D	NAS 2-10520	3326
51	STATE UNIV NY-STONY BROOK	Halstead, T W	HD-SB	Krikorian, A D	NSG 7270	3342
51	TEXAS A&M UNIVERSITY	Lewis, J L	JSC	Stramler, J H	NAS 9-16073	3929
51	TEXAS TECH UNIV	Holton, F M	ARC	Hartman, H B	NGT 44-011-800	3956
51	TULANE UNIVERSITY	MacElroy, R D	ARC	Johnson, E J	NCA 2-800001	2462
51	TUSKEGEE INSTITUTE	Klein, H P	ARC	Tolbert, M F	NAG 2-22	1026
51	UNIV ALASKA-FAIRBANKS	MacElroy, R D	ARC	Bloom, A J	NCA 2-20902	1082
51	UNIV CALIF-BERKELEY	Rasmussen, D	ARC	Pace, N	NAS 2-10499	1501
51	UNIV CALIF-BERKELEY	Rasmussen, D	ARC	Pace, N	NAS 2-10504	1502
51	UNIV CALIF-BERKELEY	Heinrich, M	ARC	Pace, N	NAS 2-10658	1503
51	UNIV CALIF-BERKELEY	Lanyi, J K	ARC	Packer, L	NCA 2-50002	1525
51	UNIV CALIF-BERKELEY	Halstead, T W	HD-SB	Pace, N	NSG 7262	1559
51	UNIV CALIF-BERKELEY	Halstead, T W	HD-SB	Pace, N	NSG 7336	1560
51	UNIV CALIF-DAVIS	Winget, C M	ARC	Chapman, L F	NCA 2-180905	1570
51	UNIV CALIF-DAVIS	Zill, I P	ARC	Huffaker, R C	NSG 2406	1575
51	UNIV CALIF-DAVIS	Halstead, T W	HD-SB	Smith, A. H	NSG 7493	1577
51	UNIV CALIF-IRVINE	Rasmussen, D N	ARC	Baldwin, K M	NAS 2-10522	1579
51	UNIV CALIF-L ANGELES	Ellis, S	ARC	Parlow, A	NCA 2-390001	1607
51	UNIV CALIF-RIVERSIDE	Ferandin, J	ARC	Fuller, C A	NAS 2-10536	1657
51	UNIV CALIF-SAN DIEGO	Devincenzi, D L	HD-SB	Nealson, K H	NAGW 73	1670
51	UNIV CALIF-SAN FRAN	Souza, K A	ARC	Arnaud, C	NAS 2-10164	1717
51	UNIV CALIF-SAN FRAN	Mehler, W R	ARC	Snyder, R L	NCA 2-665003	1724
51	UNIV CALIF-SAN FRAN	Callahan, P X	ARC	Ashing, C W	NCA 2-665004	1723
51	UNIV CALIF-SAN FRAN	Keil, L C	ARC	Reid, I A	NCA 2-665005	1726
51	UNIV CALIF-SAN FRAN	Keil, L C	ARC	Ramsay, D J	NCA 2-665006	1727
51	UNIV CALIF-SAN FRAN	Holton, F M	ARC	Cann, C E	NCA 2-665008	1729
51	UNIV CALIF-SAN FRAN	Ellis, S	ARC	Riley, D A	NCA 2-665901	1732
51	UNIV CALIF-SAN FRAN	Holton, F M	ARC	Arnaud, C	NCA 2-665902	1733
51	UNIV CALIF-SAN FRAN	Ellis, S	ARC	Riley, D A	NCA 2-665903	1734
51	UNIV CALIF-SAN FRAN	MacElroy, R D	ARC	Kuntz, I	NGT 05-029-800	1738
51	UNIV CALIF-SAN FRAN	Young, R S	HD-SB	Stoekenius, W	NSG 7151	1739
51	UNIV OF CHICAGO	Daunton, N. G	ARC	Goldberg, J M	NGR 14-001-225	2228
51	UNIV OF CHICAGO	Soffen, G A	HD-SB	Fernandez, H	NSG 7303	2237
51	UNIV OF CONNECTICUT	Devincenzi, D L	HD-SB	Leadbetter, F R	NSG 7450	1934
51	UNIV HOUSTON-HOUSTON	Schneider, H J	JSC	Zlatkis, A	NAS 9-15882	3962
51	UNIV HOUSTON-HOUSTON	Halstead, T W	HD-SB	Hendrix, D H	NSG 7300	3970
51	UNIV HOUSTON-HOUSTON	Devincenzi, D L	HD-SB	Fox, G F	NSG 7440	3972

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SI	UNIV HOUSTON-HOUSTON	Halstead, T W	HD-SB	Coules, J R	NSG 9042	3976
SI	UNIV OF LOUISVILLE	Rasmussen, D	ARC	Musacchia, N J	NAS 2-10510	2437
SI	UNIV OF LOUISVILLE	Holton, T M	ARC	Musacchia, N J	NSG 2325	2440
SI	UNIV OF LOUISVILLE	Halstead, T W	HD-SB	Musacchia, N J	NAGW 70	2436
SI	UNIV OF LOUISVILLE	Halstead, T W	HD-SB	Fuller, P M	NSG 7441	2442
SI	UNIV MID-EASTRN SHORI	Trafford, G H	WFC	Albano, M	NSG 6033	2616
SI	UNIV OF MIAMI	Rasmussen, D N	ARC	Loewenstein, W R	NAS 2-10524	2075
SI	UNIV MICH-ANN ARBOR	Ferandin, J	ARC	Kluger, M J	NAS 2-10534	2869
SI	UNIV MICH-ANN ARBOR	Ferandin, J	ARC	Ross, M	NAS 2-10535	2870
SI	UNIV MICH-ANN ARBOR	Halstead, T W	HD-SB	Nace, G W	NAGW 29	2861
SI	UNIV MICH-ANN ARBOR	Halstead, T W	HD-SB	Kaufman, P B	NAGW 34	2863
SI	UNIV MICH-ANN ARBOR	Devincenzi, D I	HD-SB	Rich, A	NSG 7452	2921
SI	UNIV MICH-ANN ARBOR	Halstead, T W	HD-SB	Ross, M	NSG 9047	2925
SI	UNIV NEW HAMPSHIRE	MacIroy, R D	ARC	Moore, B	NCC 2-27	3055
SI	UNIV OKLA-HITH SCI CTR	Heinrich, M	ARC	Stone, H I	NAS 2-10408	3602
SI	UNIV OKLA-HITH SCI CTR	Ferandin, J	ARC	Stone, H I	NAS 2-10526	3603
SI	UNIV OKLA-HITH SCI CTR	Rasmussen, D N	ARC	Dowell, R I	NAS 2-10529	3604
SI	UNIV OKLA-HITH SCI CTR	Lucid, S W	ISC	Nordquist, R I	NAS 9-15994	3605
SI	UNIV OKLAHOMA-NORMAN	Sandler, H	ARC	Stone, H I	NCA 2-580901	3615
SI	UNIV OF PENNSYLVANIA	Halstead, T W	HD-SB	Brown, A H	NGR 39-010-149	3750
SI	UNIV OF PITTSBURGH	Dauntton, N G	ARC	Tomko, D I	NCA 2-592901	3760
SI	UNIV OF ROCHESTER	Morrison, D R	JSC	Barlow, G H	NAS 9-16187	3357
SI	UNIV SAN FRANCISCO	Young, D R	ARC	Eurst, A	NCA 2-670902	1770
SI	UNIV SAN FRANCISCO	Kraft, T M	ARC	Benton, T A	NCC 2-47	1771
SI	UNIV OF SANTA CLARA	Mandel, A D	ARC	Caren, T D	NCA 2-685002	1773
SI	UNIV OF SANTA CLARA	Grindeland, R I	ARC	East, T	NCA 2-685003	1774
SI	UNIV OF SANTA CLARA	Hochstein, T I	ARC	Tomlinson, G A	NCA 2-685004	1775
SI	UNIV SO CAROLINA COL	Devincenzi, D I	HD-SB	Rohlfing, D I	NSG 7096	3804
SI	UNIV OF SOUTHERN CAL	Devincenzi, D I	HD-SB	Strahler, B I	NSG 7367	3807
SI	UNIV TENNESSEE-KNOX	Ferandin, J	ARC	Dunn, C D	NAS 2-10528	3825
SI	UNIV TEXAS-AUSTIN	Halstead, T W	HD-SB	Roux, S J	NSG 7480	4033
SI	UNIV TEX MED BRANCH-GAL	Dauntton, N G	ARC	Perachio, A A	NAG 2-26	4067
SI	UNIV TEX MED BRANCH-GAL	Ferandin, J	ARC	Correia, M J	NAS 2-10502	4068
SI	UNIV TEX MED BRANCH-GAL	Ferandin, J	ARC	Fabricant, J D	NAS 2-10513	4069
SI	UNIV TEX HEALTH CTR HUS	Rasmussen, D	ARC	Booth, T	NAS 2-10500	4076
SI	UNIV TEX HEALTH CTR HUS	Smith, M	JSC	Booth, T	NAS 9-15388	4077
SI	UNIV OF UTAH	Souza, K A	ARC	Jee, W S	NAS 2-10308	4086
SI	UNIV OF VIRGINIA	Holton, T M	ARC	Pitts, G C	NSG 2225	4231
SI	UNIV WISC-MADISON	Zill, T P	ARC	Tibbitts, T W	NSG 2405	4398
SI	UNIV WISC-MADISON	Devincenzi, D I	HD-SB	Fitch, W M	NSG 7521	4409
SI	UTAH STATE UNIV	Halstead, T W	HD-SB	Salisbury, T B	NSG 7567	4110
SI	WAKE FOREST UNIV	Ferandin, J	ARC	Hutchins, P M	NAS 2-10523	3400
SI	WAKE FOREST UNIV	Halstead, T W	HD-SB	Laffe, M J	NAGW 96	3399
SI	WORCESTER POLY INST	Young, R S	HD-SB	Danielli, J I	NSG 7154	2843
SI	WRIGHT STATE UNIV	Dauntton, N G	ARC	Crampton, G H	NCA 2-875002	3586
SI	YALE UNIVERSITY	Halstead, T W	HD-SB	Galston, A W	NSG 7290	1946
S4	BOSTON UNIVERSITY	Devincenzi, D I	HD-SB	Golubic, S	NSG 7588	2632
S4	COLORADO STATE UNIV	Hoffman, R A	JSC	Lett, J I	NAG 9-10	1818
S4	COLORADO STATE UNIV	Pitts, D	JSC	Smith, J A	NGT 06-002-800	1832
S4	FLORIDA STATE UNIV	Devincenzi, D I	HD-SB	Friedmann, T I	NSG 7337	2037
S4	OREGON STATE UNIV	Nachwey, D S	JSC	Worrest, R C	NAS 9 14860	3626
S4	SAN JOSE STATE UNIV	Klein, H P	ARC	Weaver, T C	NCA 2-675003	1325
S4	TUSKEGEE INSTITUTE	Philpott, D I	ARC	Sapp, W J	NCC 2-12	1030
S4	UNIV CALIF-ANGELES	Dauntton, N G	ARC	Markham, C H	NGR 05-007-418	1624
S4	UNIV CALIF-S BARBARA	Soffen, G A	HD-SB	Botkin, D B	NASW 3392	1746
S4	UNIV MID-EASTRN SHORI	Trafford, G H	WFC	Hung, Y W	NAC 6-4	2612
S4	UNIV OF SANTA CLARA	Deal, P H	ARC	Tomlinson, G A	NCA 2-685008	1778
S4	UTAH STATE UNIV	Nachwey, D S	ISC	Caldwell, M M	NAS 9-14871	4103

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55	SOUTH DAKOTA STATE UNIV	Salomonson, A. V.	GSFC	Heilman, J. I.	NAG 5-37	3808
55	UNIV OF KANSAS	Jones, H. W.	ARC	Martinko, I. A.	NAG 2-57	2385
55	UNIV MID-EASTERN SHORE	Devincenzi, D. I.	HD-SB	Joshi, J. M.	NSG 7470	2618
56	BAYLOR COL OF MED	Souza, K. A.	ARC	Matthews, J. I.	NAS 5-10354	3853
56	BAYLOR COL OF MED	Altchuler, S. I.	JSC	Suki, W.	NAS 9-13737	3854
56	BAYLOR COL OF MED	Rippstein, W. J.	JSC	Duncan, W. C.	NAS 9-14407	3855
56	BAYLOR COL OF MED	Homick, J. I.	JSC	Igarashi, M.	NAS 9-14546	3856
56	BAYLOR COL OF MED	Leach, C. S.	JSC	Alfrev, C.	NAS 9-14662	3857
56	BAYLOR COL OF MED	Leach, C. S.	JSC	Criswell, B. S.	NAS 9-15457	3858
56	BAYLOR COL OF MED	Leach, C. S.	JSC	Dunn, C. D.	NAS 9-16180	3862
56	CASE WESTERN RESERVE	Weigand, A. J.	FERC	Gibbons, D. I.	NAG 3-12	3403
56	CASE WESTERN RESERVE	Weigand, A. J.	FERC	Hottel, I.	NAG 3-115	3416
56	CASE WESTERN RESERVE	Weigand, A. J.	FERC	Gibbons, D. I.	NAS 3-22443	3425
56	CASE WESTERN RESERVE	Weigand, A. G.	FERC	Gibbons, D. I.	NSG 3151	3441
56	CASE WESTERN RESERVE	Weigand, A. J.	FERC	Gibbons, D. I.	NSG 3282	3458
56	CLEMSON UNIV-CLEMSON	Weigand, A. J.	FERC	Park, I. B.	NAG 3-116	3793
56	CLEMSON UNIV-CLEMSON	Weigand, A. J.	FERC	Park, I. B.	NSG 3225	3797
56	COL MED & DENT NJ	Sharp, J. C.	ARC	Natelson, B. H.	NCC 2-40	3062
56	COLUMBIA UNIVERSITY	Wintucky, I. G.	FERC	Pawluk, R. J.	NAG 3-15	3160
56	DREXEL UNIVERSITY	Altchuler, S. I.	JSC	Kamel, I.	NAS 9-15915	3659
56	FLORIDA A&M UNIV	Alterescu, S.	GSFC	Fresh, E. A.	NAS 5-25165	2030
56	HARVARD UNIVERSITY	Leach, C. S.	JSC	Moore, Ede, M. C.	NSG 9054	2683
56	HOWARD UNIVERSITY	Alterescu, S.	GSFC	Chang, P.	NAS 5-23799	2001
56	HOWARD UNIVERSITY	Yin, I. I.	GSFC	Ferguson, G. A.	NSC 5268	2015
56	HOWARD UNIVERSITY	Yin, I. I.	GSFC	Press, H. C., Jr.	NSC 5378	2018
56	INDIANA U. BLOOMINGTON	Greenleaf, J. I.	ARC	Hizondo, R.	NCA 2-335001	2280
56	JOHNS HOPKINS UNIV	Friedman, D. S.	GSFC	Long, D.	NAS 5-23732	2483
56	JOHNS HOPKINS UNIV	Friedman, D. S.	GSFC	Piro, P. A.	NAS 5-26085	2486
56	LINCOLN UNIV PA	Alterescu, S.	GSFC	Frankowsky, I. W.	NAS 5-23800	3684
56	MASS INST OF TECH	Winget, C. M.	ARC	Wurtman, R. J.	NGR 22-009-627	2759
56	MEHARRY MEDICAL COL	Alterescu, S.	GSFC	Braun, G.	NAS 5-23801	3515
56	MOREHOUSE COLLEGE	Alterescu, S.	GSFC	Barretas, R. J.	NAS 5-23571	2144
56	OHIO STATE UNIV	Nicogossian, A. I.	HD-LI	Keller, M. D.	NGI 36-008-007	3508
56	PASTEUR HERSHEY MED	Keil, I. C.	ARC	Severs, W. B.	NSG 2122	3687
56	PENN STATE U UNIV PK	Morrison, D. R.	JSC	Todd, P. W.	NAS 9-15584	3709
56	QUEENSBOROUGH COMM C	Goldwater, D.	ARC	Yuster, R.	NCA 2-625902	3275
56	SO UNIV-BATON ROUGE	Sandler, H.	ARC	Ray, G.	NCC 2-33	2460
56	STANFORD UNIVERSITY	Holton, I. M.	ARC	Feldman, D.	NCA 2-745709	1402
56	STANFORD UNIVERSITY	Holton, I. M.	ARC	Feldman, D.	NCA 2-745802	1403
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Popp, R.	NCC 2-1	1409
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Meindl, J. D.	NCC 2-48	1417
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NCC 2-51	1422
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NCC 2-52	1423
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NCC 2-70	1425
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NGI 05-020-305	1443
56	STANFORD UNIVERSITY	Keil, I. C.	ARC	Fuetscher, J. A.	NGR 05-020-456	1448
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NGR 05-020-634	1450
56	STANFORD UNIVERSITY	Carle, G. C.	ARC	Angeli, J.	NGR 05-020-690	1453
56	STANFORD UNIVERSITY	Young, D. R.	ARC	Steele, C. R.	NSG 2092	1458
56	ST UNY UPST MED CTR	Leon, H. A.	ARC	Landaw, S. A.	NCA 2-765001	3348
56	TEMPLE UNIVERSITY	Nachtwey, D. S.	JSC	Urback, I.	NAS 9-14979	3742
56	TEXAS TECH UNIV	Holton, I. M.	ARC	Kenny, A. D.	NSG 2137	3957
56	TULANE UNIVERSITY	Weigand, A. J.	FERC	Weinstein, A. M.	NSG 3209	2464
56	UNIV OF ARIZONA	Mandel, A. D.	ARC	Meinke, W. I.	NSG 2381	1167
56	UNIV CALIF-IRVINE	Mandel, A. D.	ARC	Tilles, J. G.	NGR 05-041-012	1551
56	UNIV CALIF-IRVINE	Weigand, A. J.	FERC	Foltz, I. I.	NAS 3-21963	1580
56	UNIV CALIF-SAN DIEGO	Greenleaf, J. I.	ARC	West, J. B.	NGI 05-009-109	1690
56	UNIV CALIF-SAN DIEGO	Homick, J. I.	JSC	Bullock, I. H.	NSG 9048	1715

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56	UNIV CALIF-SAN DIEGO	Horrigan, D. J.	JSC	West, J. B.	NSG 9075	1716
56	UNIV CALIF-SAN FRAN	Heinrich, M.	ARC	Goldfine, I.	NCA 2-665001	1722
56	UNIV CALIF-SAN FRAN	Cowings, P. S.	ARC	Kamiya, J.	NCA 2-665002	1723
56	UNIV CALIF-SAN FRAN	Sandler, H.	ARC	Glantz, S. A.	NCA 2-665905	1736
56	UNIV CALIF-SAN FRAN	Philpott, D. I.	ARC	Arnaud, C.	NCA 2-665906	1757
56	UNIV CALIF-SAN FRAN	Altchuler, S. I.	JSC	Genant, H. K.	NAS 9-15887	1719
56	UNIV CALIF-SAN FRAN	Altchuler, S. I.	JSC	Arnaud, C.	NAS 9-16027	1720
56	UNIV OF FLORIDA	Weigand, A. J.	FERC	Hench, L. L.	NSG 3273	2073
56	UNIV HOUSTON-CL LAKE	Sawin, C. F.	JSC	Coleman, A. I.	NAS 9-15642	3978
56	UNIV HOUSTON-CL LAKE	Sawin, C. F.	JSC	Coleman, A. I.	NAS 9-16136	3979
56	UNIV OF IOWA	Hull, W. I.	JSC	Abboud, F. M.	NSG 9060	2329
56	UNIV OF KENTUCKY	Sandler, H.	ARC	Knapp, C. I.	NSG 2318	2434
56	UNIV OF KENTUCKY	Booher, C. R.	JSC	Bhagat, P. K.	NAS 9-15452	2427
56	UNIV OF LOUISVILLE	Mandel, A. D.	ARC	Sonnenfeld, G.	NCA 2-400901	2439
56	UNIV MARYLAND-COL PK	Mandel, A. D.	ARC	Goldsby, R. A.	NSG 2378	2580
56	UNIV OF MIAMI	Huntoon, C. I.	JSC	Epstein, M.	NAS 9-15473	2083
56	UNIV MICH-ANN ARBOR	Homick, J. I.	JSC	Anderson, D. J.	NAS 9-15244	2895
56	UNIV SAN FRANCISCO	Rundel, R.	JSC	Benton, E. A.	NAS 9-15152	1768
56	UNIV TENNESSEE-KNOX	Leach, C. S.	JSC	Dunn, C. D.	NAS 9-15164	3836
56	UNIV TENNESSEE-MEMPHIS	Schneider, H. J.	JSC	Autian, J.	NAS 9-15670	3847
56	UNIV TEXAS-AUSTIN	Sherbief, D. W.	FERC	Lagow, R. J.	NSG 3190	4018
56	UNIV TEX-BIOMED GRAD	Necogossian, A. I.	HD-SB	Kev, M. M.	NGT 44-089-980	4037
56	UTEX HEALTH CTR-SA	Leach, C. S.	JSC	George, J. N.	NAG 9-5	4075
56	UTEX HEALTH CTR-DAL	Hull, W. I.	JSC	Blomquist, C. G.	NSG 9026	4074
56	UNIV WISC-MADISON	Young, D. R.	ARC	Mazess, R.	NAS 2-10359	4368
56	UNIV WISC-MADISON	Young, D. R.	ARC	Mazess, R.	NGR 50-002-051	4394
56	UNIV WISC-MADISON	Mandel, A. D.	ARC	Benton, G.	NSG 2104	4397
56	UNIV WISC-MADISON	Friedman, D. S.	GSFC	Siedbank, M. P.	NAS 5-24385	4374
56	UNIV WISC-MADISON	Contron, N. M.	JSC	Schnoes, H. K.	NAS 9-15580	4390
56	VIRGINIA COMMONWELTH	Hull, W. I.	JSC	Eckberg, D. I.	NSG 9063	4237
56	YALE UNIVERSITY	Mandel, A. D.	ARC	Evans, A. S.	NSG 2185	1943
59	ALABAMA A&M UNIV	Snyder, R. S.	MSFC	Savage, J.	NSG 8064	1007
59	BAYLOR COL OF MED	Leach, C. S.	JSC	Suki, W.	NAS 9-15891	3859
59	BAYLOR COL OF MED	Thirolf, R. G.	JSC	Chrisswell, B. S.	NAS 9-16029	3860
59	BAYLOR COL OF MED	Thirolf, R. G.	JSC	Martin, R. R.	NAS 9-16040	3861
59	BRANDEIS UNIVERSITY	Homick, J. I.	JSC	Lackner, J. R.	NAS 9-15147	2634
59	CAL STATE U-HAYWARD	Greenleaf, J. I.	ARC	Brock, P. J.	NCA 2-290001	1292
59	COLORADO STATE UNIV	Hoffman, R. A.	JSC	Lett, J. T.	NSG 9045	1846
59	CORNELL UNIV-MED CTR	Sandler, H.	ARC	Reis, D. J.	NSG 2259	3244
59	DREXEL UNIVERSITY	Larson, C.	HD-SB	Dubin, S.	NSG 7494	3671
59	EMORY UNIVERSITY	Gomersall, F. W.	ARC	McClure, H. M.	NAS 2-10627	2096
59	FLORIDA A&M UNIV	Winget, C. M.	ARC	Walker, C. A.	NSG 2029	2031
59	FLORIDA A&M UNIV	Winget, C. M.	ARC	Soliman, K. I.	NSG 2183	2032
59	GEORGE WASHINGTON U	Halstead, T. W.	HD-SB	Waters, I.	NASW 5165	1970
59	GEORGIA INST OF TECH	Quattrone, P. D.	ARC	Winnick, J.	NAG 2-11	2103
59	GEORGIA INST OF TECH	Wydmen, T. J.	ARC	Carden, J. I.	NSG 2323	2132
59	HOWARD UNIVERSITY	Riser, W. T.	KSC	Wang, Y. C.	NAG 10-2	2000
59	JOHNS HOPKINS UNIV	White, T.	JSC	Walker, W. G.	NAS 9-16030	2491
59	JOHNS HOPKINS UNIV	French, B.	JSC	Swift, D. I.	NAS 9-16036	2492
59	KENTUCKY STATE UNIV	Hoffler, G. W.	KSC	Klock, G.	NSG 801	2425
59	LINCOLN UNIV-MO	Atwell, B. H.	NSH	Molnar, I. G.	NAG 13-1	2984
59	MARQUETTE UNIVERSITY	Smith, M. C., Jr.	JSC	Fitts, R. H.	NAS 9-15711	4361
59	MASS INST OF TECH	Dauntton, N. G.	ARC	Young, I. R.	NSG 2032	2776
59	MASS INST OF TECH	Quattrone, P. D.	ARC	Modell, M.	NSG 2403	2782
59	MASS INST OF TECH	Evans, J. S.	JSC	Young, I. R.	NAS 9-15343	2737
59	MASS INST OF TECH	Sauer, R. I.	JSC	Karel, M.	NAS 9-16008	2738
59	MIAMI UNIVERSITY	Homick, J. I.	JSC	Brooks, M.	NAS 9-14538	3482
59	MIAMI UNIVERSITY	Evans, J. I.	JSC	Parker, D. I.	NAS 9-16049	3483

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59	MIAMI UNIVERSITY	Evans, J	JSC	Parker, D E	NAS 9-16051	3484
59	NEW YORK UNIVERSITY	Reeves, F A	MSFC	Johnson, A J	NAS 8-33099	3251
59	PURDUE UNIVERSITY	Zeitman, B B	ARC	Hoff, J E	NSG 2401	2310
59	PURDUE UNIVERSITY	Zill, L P	ARC	Mitchell, C A	NSG 2404	2311
59	RUSH UNIVERSITY	Kirby, R	JSC	Gottlieb, G L	NAS 9-16035	2204
59	SAN FRAN STATE UNIV	Billingham, J	ARC	Seeger, C L	NCC 2-32	1320
59	SAN JOSE STATE UNIV	Wempe, T E	ARC	Clark, B	NCC 2-34	1339
59	SO DAKOTA SCHL MINES	Hall, W F	JSC	Gowen, R J	NAS 9-15522	3806
59	SO DAKOTA SCHL MINES	French, B	JSC	Gowen, R J	NAS 9-16028	3807
59	STANFORD UNIVERSITY	Silverman, M P	ARC	Young, L Y	NCA 2-745907	1406
59	STANFORD UNIVERSITY	Kirby, R	JSC	Popp, K	NAS 9-16030	1393
59	STANFORD UNIVERSITY	Devincenzi, D L	HD-SB	Bonner, W A	NGL 05-020-582	1444
59	STATE UNIV NY-ALBANY	Horrigan, D J	JSC	Farhi, L	NAS 9-15802	3306
59	STATE UNIV NY-ALBANY	Peck, E E	JSC	Farhi, L	NAS 9-16042	3308
59	STATE UNIV NY-ALBANY	Williams, J R	MSFC	VanOss, C J	NAS 8-32947	3304
59	STATE UNIV NY-BINGHAMTN	Souza, K A	ARC	Sulzman, F M	NAS 2-10621	3318
59	TEXAS TECH UNIV	Jackson, J T	JSC	Ayoub, M M	NAS 9-16155	3955
59	TULANE UNIVERSITY	Mehler, W R	ARC	Brizze, K R	NSG 2139	2463
59	UNIV OF AKRON	French, B O	JSC	Herron, D F	NAS 9-16043	3534
59	UNIV ALA-BIRMINGHAM	Bannister, T C	MSFC	Chiovetti, R J	NAS 8-33014	1037
59	UNIV OF ARIZONA	Snyder, R S	MSFC	Bartels, P H	NAS 8-31948	1137
59	UNIV OF ARIZONA	Bannister, T C	MSFC	Bier, M	NAS 8-32950	1138
59	UNIV OF ARIZONA	Vitale, J A	HD-ET	Bier, M	NSG 7333	1181
59	UNIV CALIF-L ANGELES	French, B O	JSC	Wiberg, D M	NAS 9-16047	1605
59	UNIV CALIF-SAN DIEGO	Lintott, J	JSC	Ryan, A F	NAS 9-16033	1680
59	UNIV CALIF-SAN DIEGO	French, B	JSC	West, J B	NAS 9-16037	1681
59	UNIV CALIF-SAN DIEGO	White, T	JSC	Morgens, A R	NAS 9-16039	1682
59	UNIV CALIF-SAN FRAN	Souza, K A	ARC	Cann, C E	NAS 2-10350	1718
59	UNIV CALIF-SAN FRAN	Keil, L C	ARC	Dallman, M F	NCA 2-665806	1730
59	UNIV CALIF-SAN FRAN	White, T T	JSC	Searle, D I	NAS 9-16038	1721
59	UNIV OF DENVER	Booher, C R	JSC	Sturm, R I	NAS 9-15991	1918
59	UNIV OF HAWAII-MANOA	Peck, E E	JSC	Darriso, J F	NAS 9-16048	2163
59	UNIV HOUSTON-HOUSTON	Tremor, J W	ARC	Cowles, J R	NAS 2-10087	3960
59	UNIV HOUSTON-HOUSTON	Sauer, R L	JSC	Cox, J F	NAS 9-11676	3961
59	UNIV ILLINOIS-URBANA	Thirolf, R G	JSC	Voss, F W	NAS 9-15328	2253
59	UNIV OF KENTUCKY	White, T	JSC	Bhagot, P K	NAS 9-16034	2428
59	UNIV OF KENTUCKY	Kirby, R	JSC	Bhattacharga, A	NAS 9-16045	2429
59	UNIV MICH-ANN ARBOR	Reschke, M F	JSC	Anderson, D J	NAS 9-15375	2896
59	UNIV NEVADA-DRI	Johnson, R D	ARC	Smiley, V N	NAG 2-14	3028
59	OKLA-HITH SCI CTR	Sandler, H	ARC	Stone, H I	NCC 2-24	3606
59	UNIV OF PACIFIC	Holton, F M	ARC	Roberts, W I	NCA 2-588002	1765
59	UNIV OF PENNSYLVANIA	Peck, E E	JSC	Brown, A H	NAS 9-15531	3747
59	UNIV OF PENNSYLVANIA	White, T T	JSC	Stein, T D	NAS 9-16031	3749
59	UNIV SAN FRANCISCO	Souza, K A	ARC	Benton, F V	NAS 2-10161	1766
59	UNIV SAN FRANCISCO	Klein, H P	ARC	Satyanaravana, T	NCC 2-85	1772
59	UNIV TEXAS-DALLAS	Lintott, J	JSC	Blomquist, C G	NAS 9-16044	4054
59	UNIV TEX MED BRANCH-GAL	Leach, C S	JSC	Ziegler, M G	NAS 9-15565	4072
59	UNIV OF VIRGINIA	Souza, K A	ARC	Potts, G C	NAS 2-10195	4216
59	UNIV OF WASHINGTON	French, B O	JSC	Mlastala, M P	NAS 9-16052	4323
59	VIRGINIA COMMONWLTU	Kirby, R	JSC	Eckberg, D I	NAS 9-16046	4236
59	WASHINGTON UNIVRSITY	Holton, F A	ARC	Simmons, D J	NAS 2-10636	3005
59	WRIGHT STATE UNIV	French, B O	JSC	Petrofsky, J S	NAS 9-16041	3585
59	WRIGHT STATE UNIV	Nicogossian, A I	HD-SB	McCuen, R H	NGT 36-024-790	3587
61	SAN JOSE STATE UNIV	Winget, C M	ARC	Holley, D C	NCA 2-675005	1327
61	SAN JOSE STATE UNIV	Dauntun, N G	ARC	Fox, R A	NCA 2-675009	1330
61	SAN JOSE STATE UNIV	Suri, K P	ARC	Fox, R A	NSG 2339	1355
61	UNIV CALIF-DAVIS	Connors, M	ARC	Harrison, A A	NCC 2-48	1572
61	UNIV CALIF-SAN FRAN	Cowings, P S	ARC	Kamiya, J	NCA 2-665810	1731

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61	UNIV OF SANTA CLARA	Connors, M	ARC	Rakins, F	NCC 2-49	1782
61	UNIV OF UTAH	Sharp, J. C	ARC	Nielson, H. C	NSG 2350	4093
62	JOHNS HOPKINS UNIV	Patton, R. M	ARC	Brady, J. V	NGR 21-001-111	2497
62	PURDUE UNIVERSITY	Patton, R. M.	ARC	Castore, C. H.	NCA 2-605001	2303
69	BOSTON UNIVERSITY	Powell, C. A	UARC	Hellman, R. D.	NSG 1644	2629
69	MASS INST OF TECH	Dauntton, N. G	ARC	Held, R. M	NGL 22-009-308	2748
69	OHIO STATE UNIV	Laubert, J. K	ARC	Rockwell, T. H	NAS 2-10047	3500
69	OHIO STATE UNIV	Dunn, R. S	ARC	Jagacinski, R. J	NSG 2179	3515
69	SAN JOSE STATE UNIV	Stewart, J. D	ARC	Clark, B	NCC 2-35	1340
69	SAN JOSE STATE UNIV	Hartzell, E. J	ARC	Clark, B	NCC 2-37	1341
69	STANFORD UNIVERSITY	Tanner, T. A.	ARC	Karamcheti, K	NCC 2-44	1419
69	STANFORD UNIVERSITY	Powell, C. A	UARC	Karamcheti, K	NAG 1-17	1358
69	TEXAS CHRISTIAN UNIV	Powell, C. A	UARC	Arnoult, M. D	NAG 1-22	3951
69	TUFTS UNIVERSITY	Palmer, E. A.	ARC	Chechile, R. A	NAG 2-51	2821
69	UNIV CALIF-SAN FRAN	Cowings, P. S	ARC	Narfeh, K	NCA 2-665007	1728
69	UNIV CALIF-SAN FRAN	Cowings, P. S	ARC	Kamiya, J	NCA 2-665904	1735
69	UNIV N CAR-GRNSBORO	Curry, R. E	ARC	Regan, J. E	NSG 2390	3398
69	UNIV TEXAS-AUSTIN	Patton, R. M	ARC	Helmreich, R. L	NSG 2065	4016
69	UTEX MED BRANCH-GAL	Reschke, M. J	JSC	Correia, M. J	NAS 9-14641	4071
69	UNIV OF VIRGINIA	DeLoach, R	UARC	Cook, G	NSG 1809	4227
72	GEORGIA INST OF TECH	Scudder, L. R	UARC	Jacobson, J. E	NSG 3297	2139
72	OLD DOMINION UNIV	Batten, B. G	UARC	Strangways, R. S	NAG 1-66	4159
73	YALE UNIVERSITY	Roland, A	HD-TH	Theodore, E	NASW 3430	1940
76	CAL STATE U-HAYWARD	Holley, H	ARC	Huttman, F	NCA 2-290101	1293
79	GEORGETOWN UNIV	Tuttle, F. B	HD-TH	Cheston, T. S	NASW 3397	1993
79	UNIV CALIF-BERKELEY	Tuyahov, A. J	HD-ET	Colwell, R. N	NSG 7522	1563
79	UNIV MICH-ANN ARBOR	Clevenson, S	UARC	Kalton, G	NAS 1-16107	2866
99	BOWIE STATE COLLEGE	Bailey, E	GSFC	Kirksey, C. H	NSG 5416	2477
99	BOWIE STATE COLLEGE	Pohly, J. G	HD-LU	Kirksey, C. H	NGT 21-027-012	2475
99	CAL STATE U-CHICO	Allen, H	UARC	Lewis, M. R	NAS 3-22172	1285
99	CAL STATE U-CHICO	Rich, W. B	HD-LI	Unavailable	NASW 2835	1286
99	COLLEGE OF WM & MARY	Anderson, A. E	UARC	Aceto, H. Jr	NAS 1-14972	4120
99	COLLEGE OF WM & MARY	Greene, R. E. Jr	UARC	Barnes, C. H	NAS 1-15899	4121
99	COLLEGE OF WM & MARY	Duberg, J. E	UARC	Aceto, H. Jr	NAS 1-16042	4123
99	COLLEGE OF WM & MARY	Morris, S. J	UARC	Barnes, C. H	NAS 1-16375	4124
99	COLUMBIA UNIVERSITY	Jennings, N	GSFC	Yavarkovsky, J	NAS 5-25422	3168
99	EASTERN SHORE CMTY COL	Milliner, J. B	WFC	Layman, P	NAS 6-2964	4136
99	GEORGETOWN UNIV	Puttkamer, J. A	HD-MT	Cheston, T. S	NASW 3152	1992
99	HARVARD UNIVERSITY	Clark, T	GSFC	Lilley, A. E	NAS 5-25677	2646
99	HOWARD UNIVERSITY	Carter, C. H	HD-LU	Fan, D	NGT 09-011-060	2009
99	MASS INST OF TECH	Wempe, T. E	ARC	Sheridan, T. B	NSG 2118	2777
99	MASS INST OF TECH	Heninger, T. W	HD-SP	Bridge, H. S	NGL 22-009-638	2751
99	MORGAN STATE UNIV	Mundy, J. R	GSFC	Proctor, N. K	NGT 21-025-080	2513
99	NEW MEX ST U-LAS CR	Gomez, E. R	JSC	Guard, K	NAS 9-95504	3130
99	NEW MEX ST U-LAS CR	Thomas, C. N	MSFC	Unavailable	NAS 8-33764	3127
99	NEW YORK UNIVERSITY	Roberson, E	HD-ET	Fusfeld, H. I	NSG 7636	3266
99	OKLAHOMA STATE UNIV	Nixon, W. D	HD-LI	Wiggins, K	NASW 3313	3596
99	OLD DOMINION UNIV	Anderson, A. E	UARC	Mavgarden, E. M	NAS 1-14193	4162
99	PENN STATE U-UNIV PK	Irons, J	GSFC	Turner, B	NAS 5-26323	3704
99	PURDUE UNIVERSITY	Gordon, E	GSFC	Swain, P. H	NSG 5414	2321
99	SAN FRAN STATE UNIV	Tomberlin, K. A	ARC	Eisenberg, I	NCA 2-660001	1317
99	SOUTH DAKOTA STATE UNIV	Gordon, E	GSFC	Moore, D	NAS 5-24206	3809
99	STANFORD UNIVERSITY	Gevarter, W. B	HD-RT	Suppes, P	NAGW 6	1372
99	ST UNIV SYSTM OF FLA	Dolby, W	HD-ET	Unavailable	NASW 3060	2040
99	TEXAS A&M UNIVERSITY	Hancock, K. J	JSC	Harlan, J. C	NAS 9-15468	3926
99	TUFTS UNIVERSITY	Wempe, T. E	ARC	Kreifeldt, J. G	NCC 2-93	2822
99	UNIV CALIF-BERKELEY	Billingham, J	ARC	Welch, W. J	NCC 2-26	1529
99	UNIV CALIF-BERKELEY	Wempe, T. E	ARC	Stark, I	NCC 2-86	1532

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99	UNIV CALIF-BERKELEY	Bollenbacher, G	EEEC	Sullivan, L. A	NAG 3-111	1480
99	UNIV CALIF-BERKELEY	Heninger, L. W	HD-SP	Price, P. B	NGL 05-003-497	1538
99	HASTINGS COL OF LAW	Glazer, J. H	ARC	Henke, D. F	NCA 2-280001	1309
99	HASTINGS COL OF LAW	Glazer, J. H	ARC	Wolcott, T	NCA 2-280801	1310
99	UNIV OF CENTRAL FLA	Thomas, C. N.	MSFC	Gunter, R. D	NAS 8-33761	2044
99	UNIV OF CHICAGO	Heninger, L. W	HD-SP	Meyer, P	NGL 14-001-258	2224
99	UNIV OF CHILI	Force, C. A	GSFC	Diaz, F	NAS 5-1925	4424
99	UNIV OF CONNECTICUT	Bivins, R. G	HD-ET	Wilde, D	NASW 3191	1930
99	UNIV OF DENVER	Ault, L. A	HD-ET	Johnson, F. D	NASW 3113	1919
99	UNIV HOUSTON-HOUSTON	Smith, M. C	JSC	Bell, L	NAS 9-15944	3963
99	UNIV ILLINOIS-URBANA	Palmer, L. A	ARC	Rouse, W. B	NSG 2119	2260
99	UNIV OF KENTUCKY	Dolby, W	HD-ET	Unavailable	NASW 3039	2430
99	UNIV MARYLAND-COL PK	Truskowski, W	GSFC	Rieger, C. S	NAS 5-25764	2543
99	UNIV MD-EASTRN SHORE	Oberholtzer, J. D	WEC	Wutoh, J. G	NAG 6-3	2611
99	UNIV MD-EASTRN SHORE	Floyd, J. C	WEC	Smith, J. C	NAS 6-2855	2614
99	UNIV OF NEW MEXICO	Bivins, R. G	HD-ET	Unavailable	NASW 2936	3134
99	UNIV OF PITTSBURGH	Bivins, R. G	HD-ET	Unavailable	NASW 3042	3758
99	UNIV OF SANTA CLARA	Margozzi, A. P	ARC	Greeley, R	NCC 2-60	1783
99	UNIV OF SOUTHERN CAL	Bivins, R. G	HD-ET	Mixer, R	NASW 3235	1793
99	UNIV TEXAS-DALLAS	Heninger, L. W	HD-SP	Hanson, W. B	NGL 44-004-130	4056
99	VIRGINIA POLY INST	Wempe, T. F	ARC	Wierwille, W. W	NAG 2-17	4249
99	VIRGINIA POLY INST	Gervin, J. C	GSFC	Giles, R. H	NAS 5-25935	4258
99	VIRGINIA POLY INST	Anderson, A. F	ARC	Unavailable	NAS 1-15080	4255
99	VIRGINIA POLY INST	Deloach, R	ARC	Frair, I	NSG 1598	4285
99	VIRGINIA STATE UNIV	Owens, L. C	ARC	Boese, A. F	NAS 1-16079	4298